UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

JAN 30 2013

Collin Reinhardt
Bureau of Land Management
Bishop Field Office
351 Pacu Lane, Suite 100
Bishop, California 93514

Subject: Draft Environmental Impact Statement for the Casa Diablo IV Geothermal Development Project, Mono County, CA (CEQ# 20120362)

Dear Mr. Reinhardt:

The U.S. Environmental Protection Agency has reviewed the above-referenced document pursuant to the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

EPA has rated the Draft Environmental Impact Statement as EC-2, Environmental Concerns – Insufficient Information (see enclosed "*Summary of Rating Definitions*"). Although we support many elements of the Preferred Alternative, we are concerned about potential direct and cumulative impacts to sensitive wetland and riparian resources. The enclosed Detailed Comments elaborate on the above concerns and provide additional recommendations regarding protection of air quality and biological resources.

On a positive note, we commend BLM on the very thorough and informative discussion of greenhouse gas emissions and climate change in the DEIS.

Please note that, as of October 1, 2012, EPA Headquarters no longer accepts paper copies or CDs of EISs for official filing purposes. Submissions on or after October 1, 2012, must be made through the EPA's new electronic EIS submittal tool: *e-NEPA.* To begin using *e-NEPA*, you must first register with the EPA's electronic reporting site - https://cdx.epa.gov/epa_home.asp. Electronic submission does not change requirements for distribution of EISs for public review and comment, and lead agencies should still provide one hard copy of each Draft and Final EIS released for public circulation to the EPA Region 9 office in San Francisco (Mail Code: CED-2).

We appreciate the opportunity to review this DEIS. When the FEIS is released for public review, please send one (1) hard copy and one (1) CD ROM to the address above (mail code: CED-2). If you have any questions, please contact me at (415) 972-3521 or Scott Sysum, the lead reviewer for this project, at (415) 972-3742 or sysum.scott@epa.gov.

Sincerely,

Kathleen Martyn Goforth
Manager
Environmental Review Office (CED-2)
Communities and Ecosystems Division

Enclosures:
(1) Summary of EPA Rating Definitions
(2) EPA's Detailed Comments

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 CASA DIABLO IV GEOTHERMAL DEVELOPMENT PROJECT, MONO COUNTY, CA, JANUARY 29, 2013

Waters of the United States

Clean Water Act Section 404

The Draft Environmental Impact Statement states that there are 1.89 acres of potentially jurisdictional wetlands in close proximity of the existing power plant facilities (p. 3.3-11). The DEIS also states that construction of the project facilities near potentially jurisdictional features may result in a discharge of sediments downstream of the construction sites. Increased sedimentation to these features could lead to decreases in water quality and subsequent impacts to the biological community dependent on them. Implementation of Project Design Measure HYD-1, which would require appropriate erosion control measures and United States Forest Service best management practices to prevent soil erosion, would reduce these indirect impacts to potentially jurisdictional features. It is unclear from the discussion whether or not jurisdictional waters of the U.S. will be impacted. Also, the listing of agency required permits in section 1.6 does not indicate the need for a Clean Water Act Section 404 permit (p. 1-14).

> *Recommendations:*
> The FEIS should include a table and clear narrative describing and comparing, among the alternatives, the direct, indirect/secondary and temporary impacts to waters, including wetlands, if any.
>
> If there would be impacts to jurisdictional waters, include an estimate of type(s) and acreage, and a discussion of impact avoidance measures, mitigation availability, and compliance with the Clean Water Act Section 404(b)(1) Guidelines and Mitigation Rule.

Water Quality

According to Project Design Measure HYD-9, the project will employ conventional drilling methods and will require the construction of containment basins/sumps at each drill site for the containment and temporary storage of all drilling fluid, drilling mud and cuttings and stormwater runoff. The basins/sumps will be constructed to meet Regional Water Quality Control Board requirements. Upon completion of drilling activities, the solids remaining in the pit will be dried and tested in accordance with State regulations and, if authorized by the Regional Water Quality Control Board, USFS and Bureau of Land Management, buried in the pit.

The challenges associated with conventional drilling containment basins/reserve pits include the volume of drilling wastes; drill site installation and restoration costs; pollution of land and/or surface water due to failure of pits and/or containment system and associated cleanup costs; management and inspection/monitoring costs; potential for mortality to birds and other animals that may be attracted to the water; and potential for subsurface pollution due to downward migration from pits and/or surface soil permeability.

An alternative is pitless or closed loop drilling methods, which do not require the construction and management of a reserves pit, and storage of produced fluids in Baker Tanks. A closed loop system offers a drilling site both de-watering and wastewater management. The process involves separating solids from liquids, using both mechanical means (shaking and screens) and chemical means.
A centrifuge spins the water out of the solids. The gravel-like solids, drill cuttings, are dried and then – if they are not contaminated – used to construct access roads or new well pads. The water is stored for re-

use in the drilling process. "According to the EPA, drillers using this method see an 80 percent reduction in use of water." Also the BLM "Gold Book", which provides Best Management Practices for drilling, endorses this zero discharge process[1].

Recommendations:
The FEIS should include a discussion of pitless or closed loop drilling methods that do not require the construction and management of a reserves pit. An analysis of costs or other reasonable explanation should be provided if the developer chooses not to use closed loop drilling.

If used, reserve pit design and management should also comply with the BLM "Gold Book" best management practices.

Air Quality

Fugitive Emissions and Diesel Exhaust Mitigation
EPA commends the USFS and the BLM for incorporating fugitive dust control measures to limit impacts from particulate matter 10 microns or less in size (PM_{10}), and mitigation measures to address exhaust emissions. Although EPA supports incorporating such mitigation strategies, we advocate minimizing disturbance to the natural landscape as much as possible so that the need for measures to reduce fugitive dust is eliminated or minimized. Implementation of additional mitigation measures could reduce the Project's emissions.

Recommendations:
The EPA recommends that the FEIS include the following additional measures to reduce emissions of criteria air pollutants and hazardous air pollutants (air toxics):

- Reduce land disturbance activities as much as possible so that natural, stable soil conditions remain.
- Post visible speed limit signs at construction site entrances.
- Develop a construction traffic and parking management plan that maintains traffic flow and plan construction to minimize vehicle trips.
- Include provisions for monitoring fugitive dust in the fugitive dust control plan and initiate increased mitigation measures to abate any visible dust plumes.

Sensitive Receptors
The DEIS states that there are no sensitive receptors (e.g., schools, hospitals, daycare centers, long-term care facilities, residences) located within the immediate vicinity of the Proposed Action or alternative sites. However, Shady Rest Park, a Town of Mammoth Lakes sports complex, is approximately 160 feet southeast of proposed Well Site 38-25. Elsewhere in the DEIS it is stated that the closest sensitive receptor to a CD-IV Project site is the Shady Rest Campground, approximately 0.5 mile to the west-southwest of Well Site 38-25, and the closest residences are along Trails End Road, approximately 0.8 mile southwest of Well Sites 38-25 and 50-25 (p. 4.2-3). The DEIS states in the well drilling section that well drilling will take place 24 hours a day, 7 days a week for a total of 60 days. After drilling, flow testing will be performed, which can release non-condensable gases, including Hydrogen Sulfide.

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[1] United States Department of the Interior and United States Department of Agriculture. 2007. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development. BLM/WO/ST-06/021+3071/REV 07. Bureau of Land Management. Denver, Colorado. 84 pp.

The EPA considers facilities that house or attract children, the elderly, or people with illnesses or others who are especially sensitive to the effects of air pollutants to be sensitive receptors.

Recommendation:
The FEIS should consider the Shady Rest Park, Shady Rest Campground and nearby residences as sensitive receptors, and evaluate the potential impacts on them accordingly.

Hydrogen Sulfide Emissions
The DEIS states that, during well cleanout and flow testing, geothermal fluids would likely be pumped into large open containers and H_2S may temporarily be released from the geothermal fluid for several hours during these activities. The local H_2S emissions during these activities could exceed the Great Basin Unified Air Pollution Control District H_2S emissions standard of 2.5 kg/hr/source and could produce an objectionable "rotten egg" odor in the immediate vicinity of each well. However, according to the DEIS, these concentrations would not be expected to pose a health hazard and would not reach far beyond the vicinity of the well under normal conditions. On page 4.2-10 the DEIS states that potential H_2S emissions resulting from these activities would be temporary at each well development site and would occur for a relatively short period of several hours; however on page 2-27 the DEIS states that flow testing could be short term up to 24 hours or long term for up to 30 days.

Recommendation:
The FEIS should clarify the apparent inconsistencies in the impact analysis with regards to well flow testing. The FEIS should include an H_2S emissions monitoring plan and explain how the applicant will demonstrate that the facility is in compliance with the GBUAPCD H_2S emissions limits and the California Ambient Air Quality Standard for hydrogen sulfide of 0.03 ppm (30 ppb, 42 mg/m3) for one hour.

Biological Resources

The DEIS states that, under the Proposed Action, direct effects to migratory bird habitat include the removal of trees and shrubs to develop the power plant, transmission line, substation, well pad sites and pipeline routes. There is no mention of the potential impact to migratory birds from the new power line.

Recommendations:
The FEIS should include assurances that the design of the transmission line would be in compliance with current standards and practices that reduce the potential for migratory bird fatalities and injuries. The commonly referenced source of such design practices is found within the Avian Power Line Interaction Committee documents: *Suggested Practices for Avian Protection on Power Lines: State of the Art in 2006* manual and *Mitigating Bird Collisions with Power Lines: The State of the Art in 1994.*