



TN 38867

DOCKET
79-AFC-4 C
DATE JAN 5 2007
RECD JAN 5 2007

770 L Street, Suite 800
Sacramento, California 95814
main 916.447.0700
fax 916.447.4781
www.stoel.com

JOHN A. MCKINSEY
Direct (916) 319-4746
jamckinsey@stoel.com

January 5, 2007

VIA EMAIL AND HAND DELIVERY

Mr. Christopher Meyer
Compliance Project Manager
California Energy Commission
1516 9th Street, MS-200
Sacramento, CA 95814

**Re: Bottle Rock Power Plant (79-AFC-4C)
Pre-Operation Compliance and Submittal**

Dear Mr. Meyer:

Bottle Rock Power, LLC ("Bottle Rock Power") submits the attached Biological Resources Mitigation Implementation and Monitoring Plan for Bottle Rock Power Plant ("BRPP") to comply with pre-operation Biological Resources Condition of Certification 5-1.b.

If you have any questions regarding this submittal, please do not hesitate to call me.

Very truly yours,

A handwritten signature in black ink that reads 'John A. McKinsey'.

John A. McKinsey

JAM/mws

Attachment

**BIOLOGICAL RESOURCES MITIGATION
IMPLEMENTATION AND MONITORING PLAN**

ORIGINAL

for

BOTTLE ROCK POWER PLANT

prepared by

Bottle Rock Power, LLC

December 2006

BIOLOGICAL RESOURCES MITIGATION AND IMPLEMENTATION PLAN

1. INTRODUCTION

Biological Resources Condition of Certification (COC Bio) 5-1.b for Bottle Rock Power Plant (BRPP), as amended in Final Decision 79-AFC-4C, provides:

“The project owner shall prepare a revised detailed Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) which includes mitigation measures with their implementing methodologies, and submit it to the CEC CPM for review and approval in consultation with the California Department of Fish and Game (CDFG). The project owner shall implement the approved biological resources mitigation and monitoring measures specified in the approved BRMIMP.”

Bottle Rock Power, LLC (BRP) has drafted this revised BRMIMP to comply with COC Bio 5-1.b. This Plan provides detailed information on the mitigation measures and associated methodologies which BRP will implement to ensure that the restart and operation of BRPP will have no significant impacts on biological resources in or around the BRPP site.

2. BRPP OVERVIEW

2.1 Background

In 1980, the California Department of Water Resources (DWR) built BRPP as a fifty-five (55) megawatt geothermal power plant to supply electricity to the State Water Project. The California Energy Commission (CEC) licensed BRPP under Docket No. 79-AFC-4. BRPP began operation in February 1985, but DWR mothballed BRPP in November 1990 because of what was interpreted as declining steam production.

All steam production wells were subsequently and temporarily suspended to ensure safety. The CEC changed the status of the BRPP license from “powered” to “suspended” in 1993 to reflect the non-operational condition of the Plant. BRPP was never formally retired from operation, so it remained in “suspended” status, rather than being shifted to “retired” status.

In August 2001, the Bottle Rock Power Corporation purchased BRPP from DWR. Refurbishment of the Plant and Steamfield was delayed until September 2005. The ownership of BRPP has been converted from Bottle Rock Power Corporation to BRP since BRPP was acquired from DWR in 2001. BRP plans to recommence operations at BRPP during the first quarter of 2007.

2.2 Location

The BRPP site is situated on approximately 350 acres in that portion of the Mayacamas Mountains located within Lake County, California, in the northeastern corner of the Known Geothermal Resources Area (KGRA). The significant portion of the KGRA, commonly referred to as The Geysers, remains the largest geothermal electricity generating field in the world. The Geysers are located approximately 90 miles north of San Francisco near Clear Lake.

2.3 Description

BRPP is located on a Geothermal Lease which has been assigned to BRP. The leasehold covers approximately 350 acres. The Plant itself occupies 4.3 acres of the leasehold.

The Plant includes:

- the concrete turbine-generator building;
- a cooling tower;
- a Stretford abatement system;
- various out-buildings;
- several electric transmission towers;
- a 13,800 volt to 230,000 volt main bank transformer; and
- appurtenant physical equipment, accessories, and spare parts.

The Plant has a 55 megawatt turbine-generator set that can produce 61.1 MVA. The voltage output from the generator is 13,800 volts, which is increased to 230,000 volts in order to be compatible with the voltage at the point of delivery to the N-15 portion of the California electricity grid. Besides the turbine-generator set, the Plant has a condenser system, a cooling tower, and a Stretford system that removes the hydrogen sulfide indigenous to the geothermal steam. As an integrated whole, these systems make up the Plant.

In addition to the Plant components, the Steamfield consists of:

- fourteen production steam wells, two of which are condensate re-injection wells;
- approximately 3.5 miles of insulated steam gathering pipes and transmission lines;
- various out-buildings;
- one laydown yard.

The three well pads, Francisco, Coleman, and West Coleman, collectively occupy approximately 3.0 acres of the leasehold.

The access roads to the well pads are not paved and require annual grading to facilitate passage. The combined length of the access roads is less than 2 miles. The BRPP site is accessed by a paved and privately maintained road with a

gated entrance. The road runs over easements granted by several landowners. Consequently, a number of private households are located off this road. The access road is approximately 1½ miles in length.

3. IMPLEMENTATION OF MITIGATION MEASURES AND MONITORING

3.1 Purpose

BRP will implement the following mitigation and monitoring measures to ensure that BRP's operations will not jeopardize the vitality and integrity of biological resources in and around the BRPP site. Because species and habitats and the ecological and human-altered processes that affect them are dynamic, monitoring is necessary to track changes to the biological resources in and around the BRPP site. Monitoring provides feedback that allows past management practices to be evaluated and modified as necessary.

The BRMIMP describes mitigation measures and guidance for implementation of these measures to protect biological resources in and around the BRPP site. These measures apply to all areas of BRP's operations and are intended to fulfill the requirements of COC Bio 5-1.a through 5-3.j.

3.2 Responsible Individuals

There are three key individuals that play crucial roles in the implementation of BRP's BRMIMP.

- The CEC Compliance Project Manager (CPM) verifies BRP's compliance with COCs. The CPM will communicate regularly with the BRP Compliance Manager to ensure the COCs are clearly understood and implemented. The CPM will inform the BRP Compliance Manager of potential non-compliance and issues that may not have been previously addressed.
- The BRP Compliance Manager (CM) oversees the mitigation measure implementation and monitoring efforts of BRP and issues the requisite reports on a timely basis. The CRP CM will regularly communicate with and report as necessary to the CEC CPM. The CM will supervise the implementation of all COCs.
- The BRP Designated Biologist implements BRMIMP mitigation measures and monitoring activities in the field and produces raw data which is ultimately published in an annual status report. The Biologist directly implements the BRMIMP elements. The CEC CPM approves the BRP Biologist according to set qualification standards. The Biologist will consult with the CEC and natural resource agencies on potential biological

issues relating to BRPP and remedial actions which may be necessary.

3.3 Responsible Agencies

Regulatory agency personnel are responsible for enforcing state and federal laws, rules, and regulations that protect sensitive species and biological resources. Staff from these agencies generally have broad authority to monitor and evaluate projects that are subject to conditions which fall within the purview of their respective spheres of authority. Accordingly, these agencies can take enforcement action and insist upon implementation of particular measures which they deem necessary. Key agencies which have authority over BRPP's biological resources mitigation and monitoring activities are listed as follows:

- The California Department of Fish and Game is responsible for protecting species listed under the California Endangered Species Act.
- The California Regional Water Quality Control Board (CRWQCB) is responsible for protecting beneficial uses of surface waters under the authority of the Clean Water Act. Under Clean Water Act Section 401, the CRWQCB issues permits for water quality protection. The CRWQCB also issues Waste Discharge Requirement Orders that control the use of discharge sumps related to Steamfield activities.
- The Lake County Community Planning and Development Department issues the land use permit that controls the construction site preparation and cut and fill activities of BRP.

Each of these agencies will receive copies of all BRPP reports which relate to their regulatory authority, including the annual Biological Resources Mitigation and Monitoring Status Report prepared pursuant to COC Bio 5-3.i. These reports will include the status of BRPP's compliance with permits and authorizations issued to BRP by each respective agency. Each agency may also conduct unannounced visits to ensure compliance with COCs which include activities within the agency's scope of authority.

3.4 Implementation Area

Mitigation measures will be implemented over the BRPP site in areas that may be disturbed during the operation and maintenance of the facility. These areas include the following:

- BRPP footprint,
- laydown area;
- drilling areas, when drilling activities occur;
- access roads;
- steam transmission lines; and

- electric transmission lines.

3.5 Habitat Types

The habitat types listed below represent a cross-section of available habitats on the BRPP lease. The BRPP site has the following traditional types of habitat found in this area of California:

- black oak;
- meadow;
- chaparral; and
- forest.

There are also the following ecotones located between the traditional habitat types:

- black oak-meadow;
- black oak-chaparral;
- meadow-chaparral;
- meadow-forest; and
- forest-chaparral.

3.6 Sensitive Biological Resources

Within the context of identifying sensitive biological resources on the BRPP site, "sensitive" refers to any natural community that would be adversely affected if subjected to development and whose loss or degradation would result in negative impacts to valuable biological resources, such as occurrences of special-status species, concentrations of biodiversity, or a rare or regionally restricted natural community type.

The BRPP site, at this time, contains no known sensitive biological resources. There are no known natural communities on the BRPP site that are listed on the California Natural Diversity Data Base working list. In addition, there are no known high priority habitats on the site, such as those considered rare or endangered within California.

There are no known rare, threatened, or endangered plant or animal species on the Bottle Rock leasehold, nor in the immediate area of the leasehold.

3.7 Potentially Affected Species

Flora

There are no known special-status plant species on the Bottle Rock leasehold, or in the immediate area of the leasehold.

Hot Springs Panic Grass (*Dichanthelium lanuginosum*) thrives at The Geysers, but there are no unique thermal areas at or near the BRPP site that would support this species.

Napa Biscuitroot (*Lomatium respostum*) was identified on the BRPP site, prior to construction in 1980. This plant has not since been identified on the site. Brandegees' eriastrum (*Eriastrum brandegeae*) has been identified within a mile of the BRPP site.

Fauna

The following species are known to inhabit the BRPP site:

Birds:

- American Robin
- Black Phoebe
- Brewer's Blackbird
- California Quail
- California Thrasher
- Chestnut-backed Chickadee
- House Finch
- House Wren
- Lesser Goldfinch
- Nesting Cliff Swallow
- Oak Titmouse
- Spotted Towhee
- Tree Swallow
- Violet-green Swallow
- Western Bluebird
- Wild Turkey

Mammals:

- Black-tailed Deer
- Sonoma Chipmunk
- Western Gray Squirrel
- Numerous small mammals

3.8 Plan Modification Procedure

This BRMIMP contains mitigation and implementation measures that protect biological resources from BRPP impacts to the maximum extent feasible. Although every effort has been made to address all potential biological impacts, it is possible that unforeseen circumstances may present themselves. For example, unforeseeable regulatory changes could occur during plant operation. Regulatory changes could occur if a non-listed species becomes listed under the

federal or state Endangered Species Act or a currently listed species is found in the BRPP area. Changes could also be required if BRP alters operations at BRPP. These or other changes would require modifications and/or additions to the BRMIMP.

If any specific mitigation measure or monitoring program is determined to be ineffective, or other information from BRP, other agencies, or the public, indicates one or more significant impacts are occurring on the leasehold, BRP will undertake action to correct or reverse these impacts with advice and consent from the CEC CPM. (COC Bio 5-3.j)

If it is necessary to change mitigation or implementation measures, the CEC CPM will notify BRP and its Designated Biologist in writing that a change may be forthcoming. BRP and the Designated Biologist will then submit a Change Order within 30 days that outlines specific changes or suggestions that will minimize impacts to newly listed species.

Within 14 days, BRP and its Designated Biologist will then receive authorization from the CEC and any other agencies which have been consulted to implement the changes. All requests and approvals will be in writing.

3.9 Mitigation and Monitoring Measures

3.9.1 Sensitive Species Protection

BRP will survey the leasehold to confirm that no Hot Springs Panic Grass (*Dichanthelium lanuginosum*) or its support environs exist on or near the BRPP site.

Prior to any new ground-disturbing activities related to BRPP operation and maintenance, a qualified botanist will identify, map, and mark any Napa Biscuitroot (*Lomatium repostum*) and Brandegees' eriastrum (*Eriastrum brandegeae*) populations in the vicinity of the Plant, transmission lines, and access roads. (COC Bio 5-1.a) BRP will include the results of field marking activities in the annual Biological Resources Mitigation and Monitoring Status Report (BRMMSR) submitted to the CEC CPM.

When work will be performed close to any marked Napa Biscuitroot and Brandegees' eriastrum populations, BRP employees or other individuals conducting business on behalf of BRP will be alerted to avoid these populations. Actions taken to alert these employees and individuals will also be incorporated into the annual BRMMSR.

3.9.2 Mitigation of Loss of Habitat for Wildlife and Hole Nesting Birds

BRP will maintain wildlife watering basins or guzzlers in working condition. Monitoring for damage and failure of the watering basins will be conducted annually. Monitoring for use by wildlife will be done biennially. (COC Bio 5-3.d) Guzzlers will continue to be located in different habitats to avoid duplication. One guzzler will be in a meadow-forest ecotone and another will be maintained in chaparral habitat, to represent a broad cross-section of habitats found on the leasehold.

BRP will maintain and replace as needed the 100 existing nest boxes which have been attached to trees in various habitats on the BRPP site. (COC Bio 5-3.d) All trees affixed with a nest box will be marked with engraved aluminum tags nailed to the tree. The nest boxes will be lowered to 12-15 feet above the ground to allow more efficient assessment of the boxes. The nest boxes will be visually checked by opening the boxes at least once per month from April to July. All species of wildlife, including reptiles and mammals, will be included in the nest box analyses. On the last round of sampling, the nest boxes will be routinely cleaned of nesting material or unhatched eggs if there is no ongoing nesting activity. On average, about two nest boxes are used by western gray squirrels (*Sciurus griseus*) per year. The nest boxes used by squirrels will be maintained but monitored only visually.

In addition to the watering basins, guzzlers, and nest boxes, salt blocks, two automatic feeder spreaders, and hay will routinely be used to mitigate loss of habitat for wildlife.

3.9.3 Erosion Control Measures for Habitat Protection

BRP will develop procedural guidelines describing erosion control measures to be taken for any operation and maintenance earthmoving activities that could take place from November to March. The CEC CPM will review the guidelines for adequacy. The guidelines will be approved prior to any earthmoving activity taking place during these months. (COC Bio 5-1.e)

Best management practices deemed acceptable by the CEC CPM will be used for earthmoving activities planned for April to November. These practices will also be detailed in the procedural guidelines. (COC Bio 5-1.e)

All erosion control measure guidelines will be incorporated into the BRMIMP after approval by the CEC CPM. (COC Bio 5-1.e)

3.9.4 Erosion Control Monitoring for Habitat Protection

BRP will inspect all previously disturbed areas for soil erosion impacts each April. BRP will take corrective action wherever necessary until permanent vegetation and/or successful soil stabilization is established, as determined by the CEC

CPM. Any corrective action undertaken will be reported to the CEC CPM. (COC Bio 5-1.f)

The annual BRMMSR will contain the results of this monitoring. (COC Bio 5-1.f)

3.9.5 Erosion Control Monitoring for Watershed Protection

BRP will monitor erosion on an on-going basis during the rainy season on all cut and fill slopes and other disturbed areas. Erosion problems will be immediately repaired. If temporary repairs are made during the rainy season, permanent repairs will be completed by October 10th of each year. (COC Bio 5-3.h)

If erosion problems are discovered, the problem and the corrective action taken will be detailed in an annual report submitted on or before August 15th to the CEC CPM. If no erosion problems occur during the rainy season, a brief discussion will be included in the annual BRMMSR submitted December 15th. (COC Bio 5-3.h)

3.9.6 Protection of Vegetation from Boron Deposition and Uptake

The BRP Biologist, or another qualified individual, will perform quarterly visual inspections of vegetation. If these inspections or other information indicate that cooling tower drift or steam emissions may be affecting vegetation in the vicinity of the BRPP site, BRP will resume annual soil-duff monitoring and leaf tissue analyses to determine boron levels, according to a monitoring protocol approved by the CEC CPM. BRP will report the results of this monitoring in the annual BRMMSR. (COC Bio 5-3.a)

3.9.7 Protection of Local Surface Water Quality and Aquatic Habitat

BRP will continue surface water sampling at five established sites:

- Kelsey Creek, immediately upstream of its confluence with Alder Creek;
- Kelsey Creek, 500 feet downstream of its confluence with High Valley Creek;
- Alder Creek, immediately upstream of its confluence with Kelsey Creek;
- High Valley Creek, immediately upstream of its confluence with Kelsey Creek;
- Kelsey Creek, near Kelseyville.

Sampling at the five sites will occur each year in April, July, and October. Each surface water sample will be analyzed for boron, sodium, sulfate, calcium-magnesium hardness, pH, alkalinity, settleable solids, non-filterable residue, turbidity, specific electrical conductivity, magnesium, calcium, copper, iron, lead, manganese, and zinc. Sampling results will be reported in the annual BRMMSR. (COC Bio 5-3.b)

If the CEC CPM deems it necessary, BRP will collect and identify bottom-dwelling organisms in April, July, and October from at least one square meter of stream bed at each site and make trace metal determinations for copper, iron, manganese, lead, and zinc. (COC Bio 5-3.b)

3.9.8 Protection of Local Groundwater

BRP will continue ground water sampling at five established sites:

- Nance Spring;
- Union Oil Spring;
- Coleman Well;
- Jadiker Spring;
- Francisco Well.

Sampling of the five sites will occur each year in April, July, and October. Each ground water sample will be analyzed for boron, sodium, sulfate, calcium-magnesium hardness, pH, alkalinity, non-filterable residue, specific electrical conductivity, copper, iron, lead, manganese, and zinc. Sampling results will be reported in the annual BRMMSR. (COC Bio 5-3.c)

3.9.9 Protecting Wildlife from BRP Vehicles

All vehicles driven by BRP workers on the BRPP primary access road must be operated at the posted speed limit to minimize the risk of colliding with wildlife. (CEC Staff Analysis of Bottle Rock Geothermal Power Project Petition to Change Ownership, Allow the Restart of Operation After Suspension, and Allow 11 Facility Design Changes, p. 32.)

3.9.10 Protection of Small Amphibians and Reptiles

Open pits and vaults pose the risk trapping small amphibians, reptiles, and other animals. BRP must verify that all pits and vaults at the BRPP site, particularly on the Francisco well pad, which were previously left open, have been covered and will remain covered. (CEC Staff Analysis of Bottle Rock Geothermal Power Project Petition to Change Ownership, Allow the Restart of Operation After Suspension, and Allow 11 Facility Design Changes, p. 32.)

3.9.11 Protection of Nesting Cliff Swallows

BRP may not remove any nesting cliff swallow nest from the turbine building or an other structure which supports a mud and stick nest used by cliff swallows, except under guidance and/or authorization from the appropriate responsible agency. (CEC Staff Analysis of Bottle Rock Geothermal Power Project Petition

to Change Ownership, Allow the Restart of Operation After Suspension, and Allow 11 Facility Design Changes, p. 32.)

3.10 Status Reporting for Mitigation and Monitoring

BRP will prepare an annual Biological Resources Mitigation and Monitoring Status Report (BRMMSR) that summarizes the results of the previous year's mitigation measure and monitoring activities, including the methodologies used to satisfy COCs 5-3.a through 5-3.h, relevant maps of suitable scale, and a detailed discussion of the current status of all mitigation and monitoring actions. (COC Bio 5-3.i)

BRP will submit the BRMMSR to the CEC CPM on or before December 15th of each year to verify compliance with the Biological Resources COCs. (COC Bio 5-3.i)