California Energy Commission
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STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of the:	
COMPLAINT AGAINST THE BOTTLE ROCK GEOTHERMAL POWER PLANT (79-AFC-4C)	Docket No. 12-CAI-04

BOTTLE ROCK POWER, LLC'S DIRECT TESTIMONY, EXHIBIT LIST, AND PREHEARING STATEMENT RELATED TO THE JANUARY 22, 2013 COMMITTEE HEARING

January 3, 2013

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I. INTRODUCTION

Pursuant to the Committee's December 21, 2012 Scheduling Order (the "Order") Project Owner, Bottle Rock Power, LLC ("Project Owner" or "Bottle Rock"), submits its Direct Testimony, initial Exhibit List, and Prehearing Statement. The Order follows the filing of a Complaint submitted on October 11, 2012, by David Coleman ("Coleman Complaint"), a resident of Oakland, California, and Staff's Response to the Coleman Complaint, dated November 13, 2012. Herein, the Project Owner presents its position regarding the Coleman Complaint and the desired outcome of this proceeding.

II. PROJECT OWNER'S PREHEARING STATEMENT

The following sections set forth Bottle Rock's position regarding the Coleman Complaint, including the Project Owner's position regarding the specific inquiries set forth in the Committee's Order and all supporting legal authority, proposed language for the amended Conditions of Certification, the Project Owner's Witness List, a summary of each witness's direct testimony, the names of witnesses the Project Owner wishes to cross-examine, and the amount of time the Project Owner requires for oral argument.

A. The Committee's Request for Information

The Committee requested the parties to provide additional information and positions related to seven specific items as set forth in the Order. To that end, Bottle Rock provides responses to these inquiries below.

1. Regarding the "reduced scope of decommissioning" negotiated with the underlying landowners, the facilities proposed to remain after the project is decommissioned, including, if available, photos depicting the relationship of those facilities to their surroundings. Do the structures conform with Lake County development standards?

a. There is no "reduced scope of decommissioning."

The Project Owner has not implemented or established a "reduced scope of decommissioning," rather, the decommissioning of the Bottle Rock Power Plant ("Project") is to be determined in the future pursuant to several conditions of certification. In the Amended and Restated Geothermal Lease and Agreement (Ex. 111, "Amended Lease"), the underlying landowner and Bottle Rock Power, LLC agreed as follows: "Following (i) termination of this Lease for any cause or (ii) the dissolution or election to dissolve of Lessee, Lessor and Lessee shall enter into a binding agreement for the decommissioning of the Project generally in accordance with the scope attached hereto as Exhibit B." (Ex. 111 at ¶ 16(b).) Thus, the parties have not committed to a specific scope of decommissioning; rather, they have committed to entering a future agreement "generally" in accordance with the scope attached to the Amended Lease.

Exhibit B to the Amended Lease sets forth the anticipated scope of decommissioning. This scope anticipates "General Restoration of Property to Natural State except Turbine building and Standby Generator building. Parking in front of turbine building and road along fence to

standby generator building remain." (Ex. 111 at Exhibit B, Item 1.) Photos depicting the relationship of those facilities to their surroundings are set forth as Exhibit 101 to this testimony.

b. The Project conforms to County development standards.

At the time the Project was originally licensed and constructed, the Project site was located in an "unclassified" zoning district. At that time, Section 21-10 of the Lake County Zoning Code allowed for geothermal development in an "unclassified" district subject to approval of a use permit. (Ex. 103 (79-AFC-4 Final Decision, App. F – Applicant/Staff Jointly-Sponsored Findings, Conclusions and Conditions, "Socioeconomics").) At the time of licensing, the CEC concluded that "if the conditions specified in Appendix F are implemented, the project will be environmentally acceptable and in conformity with applicable laws, standards and ordinances." (Ex. 103 at p. 25.) The CEC also concluded at that time that the Project "complies with applicable Lake County Land Use regulations." (Ex. 103 (App. F – Applicant/Staff Jointly-Sponsored Findings, Conclusions and Conditions, "Socioeconomics") at p. 6.) Thus, the Project conformed to the applicable local LORS when originally approved in 1980.

The current zoning on the Project site is Rural Lands ("RL"), with the B Frozen ("BF") combining district and the Waterway ("WW") combining district. (Ex. 108 (Lake County Zoning Designations, Exhibit 5.1-4 of DEIR for Steamfield Project).) Uses permitted in the RL district with a major use permit are identified in Table B, Article 27 of the Lake County Zoning Code. (*Id. at* Art. 7, Sec. 21-7, 7.5(h).) Among the uses listed in the referenced Table B is (x) Power Generation Facility, which is permitted in the RL district with a major use permit. (*Id. at* Art. 27, Sec. 27.11, Table B.) Table B provides that specific standards apply to a power generation facility. (*Id.*) These standards pertain to parcel size and setback requirements, and do not require standards related to closure, reclamation or decommissioning. (*Id.*)

Within the BF combining district, "[m]inimum lot size shall be the size of the lot on the effective date of the sectional district map. No further subdivision is permitted." (Ex. 109 at Art. 30, Sec. 21-30, 30.2(d).) The BF combining district contains no standards or requirements relevant to closure, reclamation or decommissioning. (*Id*.)

The purpose of the WW combining district, is to "preserve, protect and restore significant riparian systems, streams and their riparian, aquatic and woodland habitats; protect water quality, control erosion, sedimentation and runoff; and protect the public health and safety by minimizing dangers due to floods and earth slides." (Ex. 109 at Art. 37, Sec. 21-37, 37.1.) In the WW combining district, no development activity is permitted within a riparian corridor unless the activity is exempt pursuant to the Zoning Code, or the activity is permitted pursuant to authorization from the Zoning Administrator. (Ex. 109 at Art. 37, Sec. 21-37, 37.4, 37.5, 37.6.) The WW combining district does not include specific requirements pertaining to closure, reclamation or decommissioning. (Ex. 109 at Art. 37, Sec. 21.37.)

The development standards that currently apply to the Project site are contained in the Zoning Code, Article 7, Section 21-7.10, *et seq*. The development standards include specific density limitations, minimum lot size, minimum yards, maximum structure height, parking and other requirements. (Ex. 109 at Art. 7, Sec. 21-7.10, *et seq*.) Exceptions to the development standards are also included in the Zoning Code. (Ex. 109 at Art. 42, Sec. 21-42, *et seq*.) In addition to the development standards, specific performance standards are set forth in Zoning Code, Article 41, Section 21-41, et seq. (Ex. 109 at Art. 41, Sec. 21-41, *et seq*.)

In 2006, when the CEC approved the restart of the facility, the CEC concluded that there would be "no new or additional unmitigated significant environmental impacts associated with the proposed changes" and that "[a]dherence to the proposed conditions and stipulations will

ensure the facility's compliance with all applicable LORS." (Ex. 106 (Commission Order No. 01-0530-07, Order Approving the Change of Ownership, the Restart of Operation after Suspension, and 11 Facility Design Changes) at p. 1.) Thus, as of the 2006 restart, the Project conformed to the applicable local LORS. There have been no changes to the applicable local LORS since 2006. Thus, the facility remains in conformance with local LORS.

The Amended Lease does not impact the 1980 and 2006 conclusions that the Project conforms to local LORS, and the facility remains in compliance with local LORS. The Amended Lease includes modifications to the anticipated scope of decommissioning upon termination of the lease or dissolution of Lessee. (Ex. 111 at ¶ 16(b).) As noted above, however, the Amended Lease does not commit the parties to a specific scope of decommissioning. Rather, the Amended Lease provides that the parties "shall enter into a binding agreement for the decommissioning of the Project <u>generally in accordance</u> with the scope attached hereto as Exhibit B." (*Id*., emphasis added.) Thus, the exact terms of decommissioning will be agreed to following termination of the lease or dissolution of Lessee. (*Id*.) This provision is consistent with the existing Conditions of Certification, which provide that "[p]rior to decommissioning of the power plant, the project owner shall prepare site restoration plans and submit them to the CEC CPM for review and approval at least six months prior to scheduled decommissioning." (Exs. 103 and 106 at Condition 8-4; see also, *Id*. at Conditions 5-2, 9-5.) Neither the 1980 nor 2006 decisions prescribe a scope of decommissioning. Like the Amended Lease, those decisions contemplate that a decommissioning plan will be developed at the end of the Project's life.

Because the 1980 and 2006 decisions concluded that the Project conforms to local LORS and because the Amended Lease does not make any binding commitments that conflict with the

1980 and 2006 decisions, the Project remains in conformance with local LORS. At the time of decommissioning, pursuant to the Conditions of Certification, the CEC CPM will review and approve the scope of decommissioning and can, at that time, determine whether the proposed decommissioning conforms to then applicable local LORS.

2. The estimated costs of remediating the decommissioned facility and steam fields, including underlying assumptions.

The most current decommissioning estimate is set forth as Exhibit 102. The assumptions underlying this estimate are described therein. In short, the estimate is $2.242 Million. (*See* Ex. 102 (Bottle Rock Power Plant and Steam Field Decommissioning Report from Plant Reclamation, dated October 2011).)

3. The sale agreement between the Department of Water Resources and the Project Owner and subsequent amendments thereto.

The Project Owner provides herein a copy of the Purchase Agreement for Bottle Rock Power Plant and Assignment of Geothermal Steam Lease, by and among the State of California, Department of Water Resources and Bottle Rock Power Corporation, dated April 5, 2001 ("Purchase Agreement"). (Ex. 110.) The Project Owner also provides herein a copy of the Settlement Agreement and Release of Claims by and among the State of California, Department of Water Resources, V.V. & J. Coleman, LLC, and Bottle Rock Power, LLC, dated August 14, 2012 ("Settlement Agreement"). (Ex. 112.)

4. The lease agreement between the project owner and the landowner.

A redacted version of the Amended and Restated Geothermal Lease and Agreement between V.V.& J. Coleman, LLC and Bottle Rock Power, LLC, dated July 25, 2012 is included herewith as Exhibit 111 ("Amended Lease"). The Amended Lease is a confidential document

between private parties and has not been publicly released. Some portions of the Amended Lease contain information that the parties agreed to keep confidential.

5. The amount of and terms of bonds to secure remediation of the steam fields, generating facility, or both, required or held by other entities such as Lake County, the Department of Conservation Division of Oil, Gas, & Geothermal Resources, and any others.

Financial assurance to insure cleanup in case of spills, landslides, mishaps and site reclamation upon abandonment of the steam fields is required by Lake County, as set forth in Paragraph M.16 of Lake County Use Permit 85-27 (MMU 10-01), and in Paragraph N.11 of Lake County Use Permit 09-01, which are included herein as Exhibits 104 and 105, respectively. Financial assurance is required by California Department of Conservation, Division of Oil, Gas and Geothermal Resources pursuant to California Public Resources Code section 3726.

6. The amount of and terms of environmental impairment insurance held by the project or required to be held by entities such as Lake County, the Department of Conservation Division of Oil, Gas, & Geothermal Resources, and any others.

Environmental impairment insurance is not required by Lake County, Department of Conservation, Division of Oil, Gas and Geothermal Resources, or the Commission. Nor is such environmental impairment insurance required by the Amended Lease or Settlement Agreement.

7. Lake County's conditions applicable to the steam fields.

Lake County's conditions applicable to the steam fields are set forth in two use permits. Amended Use Permit number 85-27 (MMU 10-01), was approved by the Lake County Board of Supervisors on February 19, 1980 and amended by the Lake County Planning Commission on July 29, 1982, March 14, 1985, June 26, 1986, and January 13, 2011 (UP 85-27/MMU 10-01). UP 85-27/MMU 10-01 is included herewith as Exhibit 104. Use Permit 09-01 (UP 09-01) was

approved by the Lake County Planning Commission on December 22, 2010 and is included herewith as Exhibit 105.

B. Project Owner's Position Regarding the Complaint and Supporting Legal Authority

The Coleman Complaint claims that the Project Owner violated the Commission's May 30, 2001 Order (Ex. 106), which required the Project Owner to "strictly adhere to the terms of the "Purchase Agreement for the Bottle Rock Power Plant and Assignment of Geothermal Lease"," when it entered into a subsequent agreement releasing the California Department of Water Resources and Bottle Rock Power, LLC from a specific bond obligation. (*See* Ex. 112.)

Project Owner asserts that Order No. 01-0530-07 did not establish an obligation to maintain a decommissioning bond. Project Owner also asserts that Order No. 01-0530-07 did not prohibit amending the Purchase Agreement. Further, Project Owner argues that the language of the order was designed to address concerns over the then-dormant status of the Project and the then-inexperienced character of the project owner, two situations or concerns that are no longer relevant or present.

Thus, herein, the Project Owner proffers evidence to dispute the claims of the Complaint and that further illustrates that the terms of the Amended Lease and the Settlement Agreement do not violate the Conditions of Certification applicable to the Project nor any Commission orders.

Even if the Committee were to conclude an existing order did require the Project Owner to maintain a bond, the Project Owner proffers evidence to demonstrate that the conditions under which the bond requirement were imposed have changed and no such requirement is necessary today.

For these reasons and this evidence presented, Project Owner respectfully requests the Committee to remove any ambiguity over the meaning or intent of Order No. 01-0530-07 and specify that the order is no longer needed or applicable to the Project Owner.

1. The Project's Conditions of Certification Do Not Require Maintenance of a Bond or Adherence to the Original Purchase Agreement

Neither the 1980 Order licensing the Project nor the 2006 Order authorizing restart of the Project require that the Project Owner maintain a decommissioning bond. With respect to decommissioning, the applicable Conditions of Certification provide as follows: "The project owner shall prepare and submit a reclamation plan to the CEC staff to restore the site to its original condition as nearly as practicable." (Ex. 107 at Condition 9-5.) The conditions further provide, "Prior to decommissioning of the power plant, the project owner shall prepare site restoration plans and submit them to the CEC CPM for review and approval at least six months prior to scheduled decommissioning" (*Id*. at Condition 8-4), and "One year prior to power plant deactivation, the project owner shall include in the decommissioning plan a biological resources element identifying mitigation measures." (*Id*. at Condition 5-2.) Because the Conditions of Certification do not require maintenance of a decommissioning bond, the Project Owner does not believe it has violated any Condition of Certification as a result of the Settlement Agreement or Lease Amendment.

2. The Settlement Agreement Was Modified Consistent with its Terms and Not in Conflict with Order No. 01-0530-07

Although Order No. 01-0530-07 provides that the "parties shall strictly adhere to the terms of the 'Purchase Agreement for the Bottle Rock Power Plant and Assignment of Geothermal Lease,'" Order No. 01-0530-07 does not prohibit future amendment of the Purchase Agreement. Moreover, the recent amendment to the Purchase Agreement is consistent with the

strict terms of the Purchase Agreement.

As an initial matter, the Purchase Agreement provides that it may be "amended only by an instrument in writing executed by Buyer and Seller and approved by the California Department of General Services. …" (Ex. 110 at ¶10.14.) The Purchase Agreement was amended in accordance with these strict terms when the parties entered the Settlement Agreement. Thus, the Project Owner strictly adhered to the terms of the Purchase Agreement when entering the Settlement Agreement.

In addition, when DWR and the Project Owner agreed to delete paragraphs 2.4 and 2.5 from the Purchase Agreement, they did so in compliance with the strict terms of the Purchase Agreement. The Purchase Agreement provided:

> "…provided, however, if seller receives a complete release of all liability under the Francisco Steam Field Lease, then Buyer may adjust the amount of the bond to the amount of an independent engineering estimate approved by Seller to the cost to decommission the Plant and Steam Field required to meet the requirements of the California Energy Commission, the County of Lake and any other regulatory agency with jurisdiction."

(Ex. 110 at p. 10.) The plain language of this provision does not require DWR or the Project Owner to obtain approval from any regulatory agency prior to adjusting the amount of the bond. Rather, it provides that the amount of the bond may be adjusted to meet the requirements of regulatory agencies. As noted above, the Conditions of Certification do not include a bond requirement and, therefore, there is no requirement of the Commission for a bond. Also as noted above, the Project Owner is in compliance with bond requirements imposed by the County of Lake and Department of Conservation, Division of Oil, Gas and Geothermal Resources. Because the Purchase Agreement contemplates that DWR may adjust the bond requirement consistent with regulatory requirements, and because there are no Commission conditions

requiring maintenance of the bond, the Project Owner believes the amendment to the Purchase Agreement strictly complies with the terms of the Purchase Agreement.

3. To the Extent the Committee were to Conclude Order No. 01-0530-07 Did Require a Decommissioning Bond, the Conditions Motivating Order No. 01-0530-07 have Changed

To the extent the Committee concludes that Order No. 01-0530-07 did prohibit amendments to the Purchase Agreement and did require the Project Owner to maintain a decommissioning bond, Order No. 01-0530-07 should be revised or eliminated because the circumstances under which a decommissioning bond were required have significantly changed and such a bond is no longer warranted.

Order No. 01-0530-07 makes clear that the basis for requiring a decommissioning bond is "given the facility's poor performance history, the proposed acquisition by the Bottle Rock Power Corporation could be considered a highly speculative business transaction. Additionally, the Bottle Rock Power Corporation was only recently formed and its financial capability to fund decommissioning activities is uncertain." (Ex. 106 at p. 2.) The facility no longer has a poor performance history and has been reliably operating since April 2007 and operating under the then-applicable Power Purchase Agreement since October 2007. The Project has been operating longer than DWR operated the facility and doing so with excellent reliability and availability. The Project has an availability of 96 percent, which is comparable to a reliable base-load natural gas-fired facility. The Project has a new Power Purchase Agreement for twenty (20) years, to 2032. The facility, therefore, should no longer be considered a "highly speculative business transaction." In addition, unlike the buyer at the time of Order No. 01-0530-07, the current Project Owner has a proven financial capability. Bottle Rock Power, LLC is owned by two solid and capable equity firms: U.S. Renewables Group and Riverstone, with extensive portfolios of

energy businesses. Thus, the conditions that prompted the Commission to be concerned about financial assurance for facility closure no longer exist and any requirements to maintain a decommissioning bond can be removed.

The Commission further found in Order No. 01-0530-07 that "[a]dequate measures appear to have been taken to enable DWR to ensure the proper closure and decommissioning of the Bottle Rock Power Plant subsequent to the transfer of ownership in the event Bottle Rock Power Corporation is unable to do so. And, Ronald E. Suess, President of the Bottle Rock Power Corporation, has filed the requisite statements verifying that Bottle Rock Power Corporation understands and agrees to comply with the conditions of certification." (Ex. 106 at p. 3.) The Commission, therefore, made clear that DWR was responsible for ensuring the proper closure and decommissioning of the Bottle Rock Power Plant, and that the Commission was and is responsible for ensuring compliance with the conditions of certification. It is consistent with Order No. 01-0530-07, therefore, for DWR to take responsibility for ensuring adequate decommissioning funding. As noted, the amendments to the Purchase Agreement that are memorialized in the Settlement Agreement do not conflict with any conditions of certification.

The Project Owner has no debt at this time, so the risk of bankruptcy is very low. However, the Project Owner does require additional funding to continue its steam field expansion efforts. Expansion is necessary to meet the terms of the Power Purchase Agreement. Additional funding requires a sound business model for return on investment and the decommissioning bond was a barrier to that investment. For this reason, to the extent the Committee determines that Order No. 01-0530-07 requires the bond to be maintained, the Project Owner requests that requirement be removed.

C. Proposed Amendments to the Conditions of Certification

The Project Owner does not propose any amendments to the Conditions of Certification. As noted above, to the extent the Committee concludes that Order No. 01-0530-07 requires maintenance of a decommissioning bond, the Project Owner proposes that requirement be removed.

D. Project Owner's Direct Testimony & Time Estimate for Examination

The Direct Testimony of Brian Harms is included herewith as Exhibit 100 (*see also* Declaration of Brian Harms, included herewith as Attachment A) . In summary, Mr. Harms' testimony states that the Project is operating with excellent reliability and availability and that the owners are solid and capable, financially secure equity firms.

Bottle Rock will require approximately 30 Minutes for direct examination of Mr. Harms.

The Project Owner has not reviewed the other parties' direct testimony. To that end, the Project Owner reserves the right to designate additional witnesses for direct testimony.

E. Required Time for Cross-Examination

Bottle Rock has not reviewed the other parties' direct testimony. To that end, Bottle Rock reserves the right to identify the names of each witness and the amount of time needed for cross-examination in its Rebuttal Testimony to be filed on January 17, 2013.

F. Amount of Time Needed for Oral Argument

Bottle Rock will require 10 minutes for oral argument during the January 22, 2013 Committee Hearing.

III. PROJECT OWNER'S EXHIBIT LIST

The following table identifies all exhibits the Project Owner intends to proffer in defense of its position related to the Coleman Complaint.[1]

Exhibit #	Document Title
100	Direct Testimony of Brian Harms, dated January 3, 2013
101	Photographs of the surrounding area of the Bottle Rock Geothermal Power Plant
102*	Bottle Rock Power Plant and Steam Field Decommissioning Report from Plant Reclamation, dated October 2011
103*	California Energy Commission Decision on the Bottle Rock Geothermal Power Plant, dated November 1980 (79-AFC-4)
104	Lake County Use Permit No. 85-27 (MMU 10-01), dated January 13, 2012
105	Lake County Use Permit No 09-01, dated December 22, 2010
106	California Energy Commission Order Approving Ownership Transfer from California Department of Water Resources to the Bottle Rock Power Corporation, dated May 30, 2001 (Order No. 01-0530-07)
107*	California Energy Commission Order Approving the Change of Ownership, the Restart of Operation after Suspension, and 11 Facility Design Changes, dated December 13, 2006 (CEC Order No. 06-1213-12)
108*	Lake County Zoning Designations, Exhibit 5.1-4 of the Draft Environmental Impact Report for Steamfield Project
109*	Lake County Zoning Code (current as of January 3, 2013)
110	Purchase Agreement for Bottle Rock Power Plant and Assignment of Geothermal Steam Lease by and among the State of California Department of Water Resources

[1] Bottle Rock Power, LLC is providing all Exhibits identified in its Direct Testimony to the parties on a disk, as the electronic file size thereof exceeds the limit for email transmission set forth by the December 21, 2012 letter to all parties of this proceeding. Therefore, to ensure the parties have timely access to as many of the Project Owner's Exhibits as possible, Bottle Rock has identified using an asterisk those documents that can be found online. Furthermore, on January 4, 2013, Bottle Rock will deliver to the Docket Unit a disk containing all identified exhibits with a request that the Docket Unit upload the exhibits to the Commission website by close of business January 4, 2013. Finally, Bottle Rock will provide a paper copy of any exhibit to the parties upon written request.

Exhibit #	Document Title
	and Bottle Rock Power Corporation, dated April 5, 2001
111	Amended and Restated Geothermal Lease and Agreement, dated August 2012 (provided to the parties via email on December 28, 2012)
112	Settlement Agreement and Release of Claims, by and among the State of California, Department of Water Resources, V.V. & J. Coleman, LLC, and Bottle Rock Power, LLC, dated August 2012 (provided to the parties via email on December 28, 2012)

IV. CONCLUSION

The Project Owner believes that the testimony set forth herein, and that which will be presented during the Committee Hearing on January 22, 2013, along with the evidence presented in the exhibits attached hereto, allows the Committee to prepare an order that finds the Project Owner was within its right to amend the Purchase Agreement with DWR without prior Commission approval and further that no decommissioning bond is required for the project.

Date: January 3, 2013

Stoel Rives LLP

_____
John A. McKinsey, Esq.
Kristen Castaños, Esq.
Stoel Rives LLP
Attorneys for
BOTTLE ROCK POWER, LLC

ATTACHMENT A

DECLARATION OF BRIAN HARMS

(DATED JANUARY 3, 2013)

Declaration of
Brian Harms
Bottle Rock Power, LLC
(79-AFC-4C)

Complaint Proceeding Docket No. 12-CAI-04

I, Brian Harms, declare as follows:

1. I am presently employed by Bottle Rock Power, LLC as the President and General Manager for the Bottle Rock Geothermal Power Plant.

2. I caused to be prepared or prepared the following documents in support of Bottle Rock Power, LLC's ("Project Owner") Direct Testimony. Such information is based on my independent analysis of data from reliable documents and sources, as well as my professional experience and knowledge. Specifically, I prepared or caused to be prepared the following:
    a. Direct Testimony of Brian Harms, dated January 3, 2013 (**Exhibit 100**);
    b. Photographs of the surrounding area of the Bottle Rock Geothermal Power Plant (**Exhibit 101**);
    c. Bottle Rock Power Plant and Steam Field Decommissioning Report from Plant Reclamation, dated October 2011 (**Exhibit 102**)

3. In addition to the above exhibits, on behalf of Bottle Rock Power, LLC, I am sponsoring the inclusion of the following exhibits, all of which are true and correct copies of publicly available documents:
    a. California Energy Commission Decision on the Bottle Rock Geothermal Power Plant, dated November 1980 (79-AFC-4) (**Exhibit 103**);
    b. Lake County Use Permit No. 85-27 (MMU 10-01), dated January 13, 2012 (**Exhibit 104**);
    c. Lake County Use Permit No 09-01, dated December 22, 2010 (**Exhibit 105**);
    d. California Energy Commission Order Approving Ownership Transfer from California Department of Water Resources to the Bottle Rock Power Corporation, dated May 30, 2001 (Order No. 01-0530-07) (**Exhibit 106**);
    e. California Energy Commission Order Approving the Change of Ownership, the Restart of Operation after Suspension, and 11 Facility Design Changes, dated December 13, 2006 (CEC Order No. 06-1213-12) (**Exhibit 107**);
    f. Lake County Zoning Designations, Exhibit 5.1-4 of the Draft Environmental Impact Report for Steamfield Project (**Exhibit 108**); and,
    g. Lake County Zoning Code (current as of January 3, 2013) (**Exhibit 109**).

4. Moreover, as the General Manager of the Bottle Rock Geothermal Power Plant, I am sponsoring the following exhibits in support of Bottle Rock Power, LLC's Direct Testimony, all of which are true and correct copies of:
    a. Purchase Agreement for Bottle Rock Power Plant and Assignment of Geothermal Steam Lease by and among the State of California Department of Water

Resources and Bottle Rock Power Corporation, dated April 5, 2001 (**Exhibit 110**);

b. Amended and Restated Geothermal Lease and Agreement, dated August 2012 (**Exhibit 111**; Redacted); and,

c. Settlement Agreement and Release of Claims, by and among the State of California, Department of Water Resources, V.V. & J. Coleman, LLC, and Bottle Rock Power, LLC, dated August 2012 (**Exhibit 112**).

5. It is my professional opinion that the information provided to the California Energy Commission related to the Bottle Rock Power Plant Complaint Proceeding (Docket No. 12-CAI-04) is valid and accurate with respect to the issues addressed therein.

6. I am personally familiar with the facts and conclusions related in the testimony presented by me and, if called as a witness, could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

1/3/13
Date

Brian Harms

EXHIBIT 100

Direct Testimony of Bottle Rock Power, LLC
Related to Complaint Proceeding 12-CAI-04

Project Owner's Witness: **Brian Harms** *Date:* **January 4, 2013**

I. Status of Plant and Project Owner

A. Plant Condition and Operating History

The Bottle Rock Power Plant ("BRPP" or the "Project") has been successfully restarted as a reliable base load renewable geothermal power generation facility. The Project has been operating for over five years with an availability of approximately 96 percent. The Project has a new Power Purchase Agreement ("PPA") for 20 years (until 2032) and is fully permitted for expanding its electrical generation output. The Project must expand its output to ensure meeting performance obligations pursuant to the PPA

B. Project Owner Characterization

a. Bottle Rock Power, LLC is a limited liability company organized under the laws of the State of Delaware and authorized to conduct business in the State of California (identified as an active LLC by the California Secretary of State under Entity No. 200608810241).

b. The owners of Bottle Rock Power, LLC are U.S. Renewables Group and Riverstone, two solid and capable private equity firms with extensive portfolios of energy businesses. The Project Owner has no debt at this time. The Project Owner requires additional funding to continue its steam field expansion efforts. The bond obligation was an obstacle to further investment in the BRPP to allow for the expansion.

C. The History of the DWR-Required Decommissioning Bond

The Purchase and Sale Agreement ("Purchase Agreement"), originally executed in 2001, was executed with the full intention of the signing parties that the Purchase Agreement could and likely would be amended should the land owner, now VV&J Coleman LLC, provide a full release of liability to the California Department of Water Resources. Such release was obtained as part of a three-way transaction in 2012 that included an amendment to the Purchase Agreement, which deleted sections 2.4 and 2.5, among other changes. The Project Owner does not believe it has violated any conditions of certification by amending the Purchase Agreement or Amended Lease.

II. Decommissioning Obligations

A. The CEC Decommissioning Obligations are set forth in the Commission's Order 06-1213-12, Order Approving the Change of Ownership, the Restart of Operation after Suspension, and 11 Facility Design Changes.

B. The Lake County use permit obligations are set forth in Lake County Use Permit 85-27 (MMU 10-01) and Use Permit 09-01.

C. Other Governmental Obligations Regarding Plant and Decommissioning

a. Lake County Use Permit 85-27(MMU 10-01) has bonds required under section M 16. Those bonds are in place and have been escalated in an amount in accordance with the requirements of the section and the bonding is in place. Section J of the Use Permit provides for well pad and well abandonment. The subsurface requirements under J.1. defer to the jurisdiction of the California Division of Oil, Gas & Geothermal Resources (CDOGGR). The remaining sections J.2. through J.5 provide for the establishment of the reclamation plan at the time of abandonment and also provides for property owner consultation at that time.

b. California Division of Oil, Gas & Geothermal Resources
The well abandonments subsurface are under the jurisdiction of CDOGGR. Bonds are required by each operator pursuant to California Public Resources Code section 3726. Those bonds are and have been in place.

III. Current Decommissioning Intent and Obligations

A. Obligations under Amended Lease
The Amended Lease includes general provisions for a scope of decommissioning that is acceptable to the land owner and Bottle Rock Power, LLC. The landowner and Project Owner have a confidentiality agreement that prevents full release of the Amended Lease. The redacted version of the Amended Lease provided to the Committee has been approved for release by the landowner.

B. Current intentions regarding decommissioning
Bottle Rock Power, LLC's intent for decommissioning the Project is to follow the requirements of the California Energy Commission's Conditions of Certification, and the County of Lake's Use Permit conditions and ordinances at the time of decommissioning. In addition, the Project linear facilities (steam wells) are subject to the CDOGGR's regulations for well abandonment at the time of any such abandonment.

EXHIBIT 101

EXHIBIT 102

Plant Reclamation

October 10, 2011

Bottle Rock Power, LLC
P.O. Box 326
Cobb, Ca. 95426

Attn: Ms. Samantha Huggins

Re: Bottle Rock Power Plant and Steam Field Decommissioning Report.

Dear Ms. Huggins:

Plant Reclamation respectfully submits the following Bottle Rock Power Plant and Steam Field decommissioning budget estimate. These estimates may vary 15% to 20% based on conditions that may exist at the time of decommissioning. Conditions being referred to include the current value of scrap metal, the permit costs and time frames associated with obtaining the permits, a change in environmental compliance criteria and other similar type factors.

The estimates are described per the decommissioning scope submitted on October 6, 2011 and our site visit. The estimates provided are calculated in 2011 dollars and are subject to revision as economic conditions change in the future.

1: Removal of all machinery and equipment in the turbine building.	$ 425,000.00
2: Removal of Cooling Tower and Feed Water Pump Facility.	$ 215,000.00
3: Removal of Stretford Facility.	$ 185,000.00
4: Removal of Miscellaneous Buildings at Main Plant Site.	$ 65,000.00
5: Removal of Turbine/Generator Water Circulating System.	$ 82,000.00
6: Removal of Steam Field Piping.	$ 305,000.00
7: Removal of all Equipment remaining at 3 Well Sites.	$ 140,000.00
8: Abatement and Decontamination of Steam Field Piping.	$ 195,000.00
9: Backfill and Re-vegetate 3 Well Sites.	$ 255,000.00
10: Backfill and Rough Grade Pits and Basements at Main Plant.	$ 375,000.00

Total estimated cost: Two Million Two Hundred Forty Two Thousand Dollars ($2,242,000.00).

Total estimated scrap recovery value: One Million One Hundred Fifty Thousand Dollars ($1,150,000.00).

912 Harbour Way South ● Richmond, California 94804 ● 510.233.6552 ● Fax 510.237.6739

The decommissioning budget estimate is based on the following conditions:

1: Owner to supply water for fire safety and dust control.
2: Owner to be responsible to provide power to turbine building in order to facilitate the use of the overhead crane.
3: All structures on site to be removed to top of slab or pad level except the turbine/ generator building, the office building and the standby generator building.
4: All concrete, rubble and non hazardous debris generated during dismantling can be placed in pits, voids and basements located onsite.
5: No engineering, compaction or import of backfill is included in this estimate. Backfill of pits, voids and basements will be done with onsite borrow source material.
6: Contractor will be responsible to obtain Cal/OSHA and Air Quality permits. All other permits, reports, surveys, plans,sampling, agency negotiations or any other necessary or required authorization from any agency or party necessary to perform the work is not included in this estimate.
7: Owner will be required to perform all utility isolation and electrical isolation. All power to lighting systems and overhead cranes to be the responsibility of owner.
8: Removal, transportation, disposal and handling of hazardous wastes /materials is not included in this estimate. Demolition of the Cooling tower and Stretford unit is included however in the estimate.
9: Estimate does not include closure of wells.
10: All salvage material to become property of owner. Owner to be responsible for the sale, transportation and loading of such. Contractor will address this item if requested to do so and will provide credit to owner upon negotiation.
11: Estimate does not include re-grading site for storm water run off control and management. SWPP to be the responsibility of owner.
12: All debris to be considered Class III non hazardous demolition debris and can be disposed of as non hazardous demolition debris.
13: Estimate assumes contractor has unimpeded access to the site to perform the work.
14: All decontamination and cleaning of plant processes will be either performed by owner or will be performed on a reimbursable basis by contractor. Estimates do not include decontamination, cleaning, sampling, testing or other hazardous waste or material handling, transportation, disposal or processing costs.
15: Below grade demolition work requested by owner to be performed on a time and material reimbursable basis.
16: Estimated time frame to complete the work is 8 to 12 months.

SCHEDULE:

The order of magnitude budget is based on the following:

Conduct all phases of the site clearing operation with one mobilization.
Working a 4/10 work schedule.
Crew of 12 to 14 people required.
Work completed in 8 to 12 months.

ASSET RECOVERY VALUES:

The facility assets contain recoverable values that can be off set some of the site clearing cost. The recoverable values can be achieved though the removal of the ferrous and non-ferrous materials. Currently the order of magnitude estimate will be based on an unknown number of tons of recoverable assets. As of the date of this estimate the current recovery value is approximately One Million One Hundred Fifty Thousand Dollars ($1,150,00.00). This will generate a credit back to Bottle Rock Power LLC.

SUMMARY:

The order of magnitude estimate is plus or minus 15% to 20% and are based on current market and site conditions. Please be aware conditions such as asset recovery values, fuel, overhead, labor costs and changes in site and other items can impact a project of this size drastically in either direction based on when the project is actually performed. Asset recovery values used for the basis of the budget presented are provided by the American Metal Market and local recycle brokers in our region.

The order of magnitude estimates we have provided are form our past experience and knowledge directly related to this type of project. Plant Reclamation has been in the dismantling business since 1972 and headquartered in Richmond, California. We are one of the top specialty contractors in the United States concentrating in industrial demolition, abatement, remediation and asset recovery. The company conducts work both domestically and internationally.

Plant Reclamation's work experience has been accomplished throughout the refining, chemical, manufacturing, power generation, steel mill mining and lumber industries. The following are some of the related projects requiring complete site clearing, abatement and demolition that Plant Reclamation has performed:

CCPA Geothermal Power Plant
Barrick Gold Company-El Indio Mine, Chile
Homestake Mining Company-Lower Lake, California
Certain Teed-Granular Mining and Manufacturing-Sacramento, California
ConocoPhillips
Chevron
Tesoro
Shell
Valero
Alcoa-California
Hamilton AFB- Novato, California
Zeneca Chemical Company-Richmond, California

We are California Licensed Contractors #518628 and conform to all rules and regulations, both Federal and State, pertaining to same. We are bondable and have available in excess of ten million dollars ($10,000,000.00) in liability insurance and compensation insurance as required by law.

I hope this meets with your approval and thank you for the opportunity to be of assistance.

Sincerely,

Fred Glueck

Fred Glueck
Plant Reclamation

912 Harbour Way South ● Richmond, California 94804 ● 510.233.6552 ● Fax 510.237.6739

EXHIBIT 103

California Energy Commission Decision on the Bottle Rock Geothermal Power Plant, dated November 1980 (79-AFC-4)

Due to file size limitations, this Exhibit can be found online at:
http://www.energy.ca.gov/sitingcases/bottlerock/documents/2009-10-17_Original_Final_Decision.PDF

COMMISSION DECISION
ON THE DEPARTMENT OF
WATER RESOURCES' AP-
PLICATION FOR CERTI-
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COMMISSION DECISION on the Department of Water Resources' APPLICATION FOR CERTIFICATION FOR the Bottle Rock Geothermal Project

79-AFC-4

NOVEMBER 1980

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STATE OF CALIFORNIA
ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

In the Matter of: Application for Certification of the DEPARTMENT OF WATER RESOURCES' BOTTLE ROCK PROJECT	Docket No. 79-AFC-4 FINAL DECISION

The Commission adopts the Final Environmental Impact Report (FEIR) submitted by Staff on October 14, 1980. This Decision adopts the Committee's "Proposed Final Decision", including the Findings, Conclusions and Appendices contained therein.

The Executive Director is to: 1) transmit a copy of this Decision and appropriate accompanying documents to all persons and agencies specified under Public Resources Code (PRC) section 25537 and Title 20, California Administrative Code (CAC) section 1768 and, 2) ensure that the provisions of PRC section 25703 are complied with within four months of the date on which this Decision is final. The final date for this Decision is the date on which it is signed by voting members of the Commission and filed with the Secretariat (Docket Unit).

The Application for Certification in this matter is APPROVED, subject to the terms identified by the Committee in its Final Decision.

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CALIF. ENERGY COMMIS
COMMISSION DECISION\K/79-AFC-4
(4) 1980 C S R 621.44

ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

RUSSELL L. SCHWEICKART,
Chairman
and Presiding Committee Member

C. SUZANNE REED,
Commissioner
and Committee Member

EMILIO E. VARANINI, III,
Commissioner

JAMES A. WALKER,
Commissioner

RONALD D. DOCTOR,
Commissioner

DATED: November 5, 1980

STATE OF CALIFORNIA—THE RESOURCES AGENCY

EDMUND G. BROWN JR., Governor

CALIFORNIA ENERGY COMMISSION
1111 HOWE AVENUE
SACRAMENTO, CALIFORNIA 95825

October 21, 1980

The California Energy Resources Conservation and Development Commission, through the Commission Committee assigned to the Department of Water Resources' Application for Certification of the Bottle Rock Geothermal Project (79-AFC-4), hereby submits its Proposed Final Decision pursuant to Public Resources Code section 25522.

RUSSELL L. SCHWEICKART, Chairman
and Presiding Committee Member

Due to other Commission time commitments, Commissioner C. Suzanne Reed, the second member of the Committee, did not have an opportunity to review the contents of the Proposed Final Decision before its publication.

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PROLOGUE

On October 5, 1978, the Applicant, the California Department of Water Resources (DWR), filed a Notice of Intention (NOI) to file an Application for Certification (AFC) to build a 55 megawatt (MW) geothermal power plant and related facilities in Lake County. This proposed facility, designated DWR's "Bottle Rock Project", is to be located on the Francisco leasehold in the Lake County portion of the Geysers Known Geothermal Resource Area (KGRA). On June 1, 1979, the Commission approved the NOI and on July 27, 1979, DWR filed the AFC. The application was suspended at the request of the Applicant on January 1, 1980, and March 6, 1980.

The Findings of Fact and Conclusions of Law that follow are limited to those required by the Public Resources Code. Because of this abbreviated approach, the Committee emphasizes that Appendices A and F are substantive legal elements of the Decision, containing enforceable conditions affecting the development of the DWR Bottle Rock Project. Appendix E describes the process through which the Commission Staff will monitor compliance of Appendices A and F.

Finally, because many mitigation measures are adopted from variously-authored documents, the Committee establishes the following rules of construction in complying with its Findings and Conclusions: the Applicant shall implement all measures phrased as "shall", "must", and "will"; those phrased as "should", "might", and "could" are to be interpreted as identifying further impacts to be mitigated, although the actual method of implementation may reasonably vary from those suggested.

PART ONE

A. Findings on Compliance with Statutory Site-Certification Requirements

I. Need

The Commission's exclusive power plant siting authority is not limitless; certification authority exists to approve only environmentally acceptable power plant sites and related facilities required to provide a supply of electric power sufficient to meet the demand projected in the Commission's most recently adopted forecast of statewide and service area electric power demands (PRC section 25500 ff.). Moreover, no facility can be certified unless it is in conformity with the current 12-year forecast (see also PRC sections 25523(f) and 25309(b)).

In Chapter 4 of the 1979 Biennial Report, the Commission stated that its "assessment of need is based on a balance of factors which include protecting public health and safety and the environment, and conserving resources." Conventional sources of energy (nuclear power, oil, gas and coal) are seen as having a "severely limited" capacity to meet the "environmental/demand" definition of "need" required by the Warren-Alquist Act. In contrast, alternative sources of energy (e.g., geothermal, cogeneration) have the capacity to produce energy at a significantly reduced level of environmental impact. Geothermal power, in particular, is a desirable alternative energy source because it is currently available, efficient, cost stable, and increasingly significant - indigenous to California. The Committee notes that in the Bottle Rock AFC, Applicant and Staff predict that the 55 MW plant will produce geothermal energy in an amount sufficient to displace 674,000 barrels of oil annually.

As the parties to this proceeding can attest, the Committee follows a presumption (as distinguished from a conclusion) that alternative sources of energy

create environmentally acceptable risks and effects. Consistent with the 1979 Biennial Report, page 50, the Committee has reviewed the proposed project to assess its ability to "demonstrate reasonably mitigable environmental impacts which meet existing air and water quality standards." To meet this burden, both parties have provided witnesses and documentary evidence to support jointly-sponsored Findings and Conclusions.

Subject to the provisions specified in this Decision, including the conditions contained in Appendices A and F, the Committee finds that the proposed project possesses no unacceptable environmental impacts, is needed, and therefore recommends that the DWR Bottle Rock Project be APPROVED.

II. Environmental Impact

PRC section 25523(a) requires the Commission's Final Decision to contain specific provisions regarding the manner in which the proposed project is to be "designed, sited, and operated" in order to protect environmental quality and assure public health and safety. Section 25523(d) further requires that the Decision contain Findings regarding conformity with public safety standards, air and water quality standards, and with "other relevant" local, regional, state, and federal standards, ordinances or laws. Section 25525 prohibits approval of an AFC where conformity is not demonstrated, "unless the Commission determines that such facility is required for public convenience and necessity and...there are not more prudent and feasible means of achieving such public convenience and necessity."

The Committee finds that the applicable local, regional, state and federal standards, ordinances, and laws have been identified in the record of this proceeding and that, for the reasons stated in Part Two of this Decision and with implementation of the measures as contained in Appendices A and F

of this Decision, the project can be designed, sited and operated to comply with all applicable standards, ordinances, and laws.

III. Compliance Monitoring

PRC section 25532 requires the Commission to establish a monitoring system to assure that any project certified is constructed and operated in compliance with air and water quality, public health and safety, and other applicable regulations, guidelines, and conditions. Appendix E contains the required compliance monitoring program. This program was presented for public and other agency comment at a workshop conducted in Lakeport, California on October 16, 1980. The Committee finds this program sufficient to satisfy the requirements of PRC section 25532.

IV. Efficiency and Load Management Standards

The Public Resources Code prohibits certification of a power plant without consideration of, and conformity to, if appropriate, the applicable efficiency and load management standards (PRC sections 25402(d); 25403.5; and 25523(d)). DWR is not subject to any such standards. The Committee therefore finds that these provisions of the Public Resources Code pose no bar to certification of the DWR Bottle Rock Project.

B. The Final Environmental Impact Report

The California Environmental Quality Act (PRC section 21000 ff.) and the Commission's regulations (20 CAC section 23000 ff.) require the preparation of an Environmental Impact Report for proposed power plants and related facilities.

On December 10, 1979, the staff of the Commission released the initial Draft Environmental Impact Report (DEIR) on the proposed project. During the

forty-five (45) day public comment period, changes were made in the AFC and the Staff decided to revise the DEIR. The Revised DEIR (RDEIR) was released on August 21, 1980, and public comment was accepted until October 6, 1980. During the public comment period a workshop was conducted in Middletown, Lake County (September 15, 1980) for the purpose of receiving local reactions to the Revised DEIR.

Following review of comments received on the Revised DEIR, the Commission staff prepared the Final EIR which was distributed on October 14, 1980. The Final EIR is a crucial document since it encompasses the degree of environmental review required by Federal and State law, and comprises a large part of the evidentiary base for Staff's position.

The Committee certifies that the Final EIR has been prepared in compliance with the California Environmental Quality Act and all applicable State and Commission guidelines. The Committee further certifies that the Final EIR has been considered in adopting this Decision. Finally, the Committee finds that the DWR Bottle Rock Project site and related facilities, if the measures as identified in Part Two of this Decision, including Appendices A and F are implemented, shall cause no significant adverse environmental impacts.

C. Procedural Steps

On June 21, 1979, the Commission approved the DWR Bottle Rock Project NOI. The NOI Final Report adopted by the Commission, especially in Part V, pages 134 through 150 and the Commission's "Decision", identified numerous conditions which reflected tasks to be performed and information to be submitted before the Commission could ensure that the project would be designed, sited and operated in compliance with applicable standards, ordinances

and laws. The Committee considered the project in light of this additional information during the AFC proceeding.

On July 27, 1979, DWR submitted the AFC and on August 29, 1979, the Executive Director conditionally accepted the AFC. On October 25, 1979, the Committee formally requested public agency comments on the proposed project and suggestions for monitoring compliance of the project with applicable standards, ordinances and laws.

Although April 22, 1980 was originally designated as the date on which the Commission would issue a Final Decision in this project, the Applicant's requests for extensions were granted by the Committee several times (January 24, and March 6, 1980), resulting in an initial revised Final Decision date of October 13, 1980. This date was delayed to November 5, 1980, due to events at the Prehearing Conference, scheduling of Evidentiary Hearings and late receipt of the Determination of Compliance.

On November 15, 1979, the Committee held an Information Hearing in Lakeport, California, to gather the views and comments of members of the public. Additionally, the Commission staff sponsored several informal public workshops to discuss technical issues with the Applicant, interested agencies, and members of the public. The Northern California Power Agency, the Cobb Valley Residents and Property Owners Concerned, the Camp Beaverbrook, Inc., the Capital of the Age of Enlightenment for Northern California, Donald F. X. Finn, and the County of Lake joined the proceeding formally as intervenors. All public agency comments and others received during the AFC proceedings were carefully considered by the Committee in reaching its Final Decision.

On August 28, 1980, the Committee held the first Prehearing Conference for the purpose of identifying disputed issues, organizing the presentation of testimony at the subsequent evidentiary hearings, and verifying all parties' interests to present witnesses and/or exercise an opportunity for cross-examination and rebuttal. At the Conference, the Public Advisor objected to continuation of the proceeding on the grounds that timely notice of Prehearing Conference Statements had not been provided. The Committee therefore ordered a second Prehearing Conference on September 17, 1980. Thereafter, evidentiary hearings were conducted on September 18, 1980, in Sacramento, and on October 9 and 10, in Lakeport. In all issues, Applicant and Staff presented jointly-sponsored proposed findings and conclusions. Cross-examination and rebuttal witnesses are noted in Part Two.

D. Evidentiary Bases

The Final Decision is based on the written and oral testimony presented during the three days of evidentiary hearings, consideration of the Final Environmental Impact Report (which incorporates by reference the Revised Draft EIR), the Determination of Compliance submitted by the Lake County Air Pollution Control Officer, and comments from public and governmental agencies including those offered at the hearings on this project. All of these items are a matter of public record in this proceeding. In evaluating the evidence the Committee has been further guided by its own expertise and policy considerations such as those enunciated in the 1979 Biennial Report.

The Applicant and Staff have arrived at common positions supported by the weight of evidence on the record with respect to all areas. However, as indicated in the following text, the intervenors expressed dissatisfaction with certain elements of the Application. NCPA challenged the proposed transmission line route, the County of Lake proposed a condition to mitigate socioeconomic impacts; and Camp Beaverbrook testified on the impact of Bottle Rock Road.

PART TWO

Introduction

The Final Environmental Impact Report describes the proposed project in detail and addresses environmental concerns in depth; the record also contains corroborating oral and written testimony. Due to the undisputed nature of the bulk of evidence presented, and its preservation on the record, the Final Decision briefly summarizes the presentations, explains resolution of factual disputes and offers reasoned conclusions of law in the areas of Need, Environmental Resources, Public Health and Safety, Plant and Site Safety and Reliability and Socioeconomics, Land Use, and Cultural Concerns. However, in the area of Socioeconomics because of the significant condition proposed by the County of Lake, the Committee has included the briefs filed by the Applicant, Staff, and Lake County as well as the Legal Opinion submitted by the Commission's General Counsel. These documents are located in Appendix B. Appendix C has been included to record the Applicant's concern for confidentiality of the EIC process and establish the Committee's concurrence with DWR's proposed procedure for protecting this information.

A. Need

PRC section 25500.5 limits the Commission's authority to certify power plant sites and related facilities to those "which are required to provide a supply of electric power sufficient to accomodate the demand projected in the most recent forecast of statewide and service area electric power demands adopted pursuant to subdivision (b) of section 25309". Section 25309(b) requires the Commission to prepare the Biennial Report for the Governor and Legislature to include:

"The level of statewide and service area electrical energy demand for the forthcoming 5- and 12-year forecast or assessment period which, in the judgment of the commission, will reasonably balance requirements of state and service area growth and development, protection of public health and safety, preservation of environmental quality, maintenance of a sound economy, and conservation of energy and resources reasonably expected to occur. Such 5- and 12-year forecasts or assessments established by the commission shall serve as the basis for planning and certification of facilities proposed by electric utilities. ..."

The 1979 Biennial Report, at page 50, responds to the above mandate by stating:

"We will continue to certify the maximum number of geothermal sites and facilities that demonstrate reasonably mitigable environmental impacts and that meet existing air and water quality standards. Any facility that meets these criteria will be deemed needed."

Thus, the "energy demand" side of the Commission's "need" assessment is conclusively disposed of by the Biennial Report and the Committee finds that the DWR Bottle Rock Project complies with the Commission's most recently adopted 12-year demand forecast. However, it is significant to note that in this project immediate benefit from the preferred technology approach will be realized in the anticipated production at Bottle Rock of energy equivalent to displace the use of 674,000 barrels of oil per year (Appendix E, Exhibit 7, Finding #5).*

As is found in the subsequent portions of this Decision, with implementation of the measures contained in Appendices A and F, associated environmental impacts are reasonably mitigable and the project will comply with applicable air and water quality standards.

---

*Each issue area reviewed by the Committee during evidentiary proceedings was assigned an exhibit number.

B. Environmental Resources

Both the Public Resources Code and the policies enunciated in the Biennial Report require the Committee to carefully consider and determine whether the impacts which a proposed project will have upon the natural and human environment can be reasonably mitigated and to ensure that, absent unusual circumstances, the project is designed and constructed to operate in compliance with applicable standards, ordinances, and laws. The Committee, in complying with these directives for the purposes of this Final Decision, has categorized the presentations during the hearings on the topics of air and water quality, water resources, hydrology, soils, solid waste management and biological resources as integrally related to the broad "environmental resources" concept.

1. Air Quality

Geothermal power plants emit hydrogen sulfide and particulate mater from the cooling tower, along with small quantities of mercury vapor, ammonia, arsenic and certain other compounds. The most troublesome pollutant emitted is hydrogen sulfide (H_2S), an odorous substance that has been characterized by residents of the Geysers area as a nuisance. The state standard for H_2S emissions (based on a nuisance odor threshold) has been exceeded in the project area. (See Revised DEIR, p.37).

The Applicant proposes three separate H_2S abatement systems (EIC process, Stretford with surface condenser, and a hydrogen peroxide condensate treatment system) in addition to a turbine bypass system to achieve an emission rate no greater than 5 pounds/hr. which meet the "New Source Review" rules (sections 602, 604 H_2S emission limit; RT, 1608 and Appendix A).

The EIC process will clean the steam supplied to the power plant. Although data is insufficient to determine maximum abatement efficiency, it is estimated to be between 90-99 percent. Moreover, the Bottle Rock Project is the first plant employing this process and it will be used in conjunction with the Stretford and hydrogen peroxide systems, which have been previously identified as the best available control technology (BACT). This process will also treat steam during outages (using an emergency generator) and feature a demister to avoid problems of equipment corrosion (detected in tests of 100,000 lb/hr steam at PGandE Unit 7).

The Stretford system will receive the noncondensible H_2S gas flow and treat it with a maximum abatement efficiency rate of 99 percent. In the event of a repair or emergency shutdown, flow will be redirected via a bypass system to the cooling tower. Reliability is unknown but estimated at 90 percent-plus availability.

The hydrogen peroxide system will be used downstream as a secondary abatement measure to treat condensate. Efficiency is predicted in the 95-98 percent range and on January 1, 1982, Bechtel National, Inc., will provide results of a sixty-week efficiency test program.

During shutdowns, a turbine bypass system will be employed. DWR is the first Applicant to use this system on a geothermal power plant.

The Air Resources Board (ARB) indicates that the H_2S content in steam at the Bottle Rock site is 600 ppmw (ARB letter to Lake County Air Pollution Control District (LCAPCD), January 1, 1980), subject to variations by time (see: "Workshop on environmental control technology for the Geysers-Calistoga KGRA Lawrence Livermore Laboratory Report", January 28, 1980).

A Determination of Compliance (Appendix A) was submitted to the Committee on September 24, 1980 by the Lake County Air Pollution Control Officer (LCAPCO) and reviewed during the October 10, 1980 Evidentiary Hearing. It indicates an H_2S content in steam of 450 ppmw. The LCAPCO testified that the conditions listed in the Determination of Compliance (including the Errata Sheet thereto, dated October 10, 1980), when met by the Applicant, would ensure operation of the proposed facility in compliance with all applicable local air district rules and regulations. Thus, with the implementation of such conditions, the LCAPCO testified that the facility will not prevent the attainment, interfere with the maintenance or cause a violation of any state or national ambient air quality standard.

Witnesses for Applicant and Staff testified that the power plant will comply with all applicable emissions limitations and new source review requirements during normal plant operation (RT, 1604-08) provided that conditions 1-13 jointly sponsored in their written testimony (see Appendix F, "Air Quality" Section) are met. It should be noted that condition 1(a) was added during the evidentiary hearing to meet the Applicant's concern for confidentiality in examining the EIC system (see Appendix C, General Counsel's Opinion and Applicant's Supplemental Filing).

Finally, the FEIR (p.95) contains an independent analysis of air quality impacts which concludes that the facility is not expected to produce significant adverse effects provided that the proposed mitigation measures specified in "Air Quality" section, Appendix F are implemented.

The County of Lake has granted a Use Permit to the steamfield operator (see Appendix D).

2. Water Quality - Water Resources - Hydrology - Soils - Solid Waste Management

Potential water quality impacts have been identified as sedimentation/siltation, discharge of toxic wastes/substances, cooling tower drift deposition, and waste disposal (Revised DEIR, p. 98). The Final EIR concludes that the mitigation measures proposed by the Applicant will avoid significant environmental impacts. Staff and Applicant presented witnesses who classified potential impacts in three groups: spills, drifts and disposal (RT, September 18, 1980). To prevent spills of H_2S abatement process materials, the Applicant will separately berm or basin the cooling towers, the condensate reinjection sump, the H_2S abatement systems, and berm and cover the pad with an asphaltic layer. Total spill retention volume will be 389,000 gallons, or 2.3 times the maximum anticipated spill of 170,000 gallons. Pollution from drift accumulation (boron, mercury and ammonia) and oil drip (from machinery and vehicles) could adversely affect water quality as storm runoff. To minimize this possibility, the Applicant will divert to the condensate reinjection system at least the first one-half inch of precipitation runoff of the first continuous storm and either as much as possible of lesser storms or the maximum possible of "first" storms (after an extended dry period). To handle waste the Applicant will utilize a 3,000 gallon septic tank and dispose of effluent by injection into the steam reservoir. Finally, Applicant and Staff jointly proposed conditions to certification which they testified are necessary to mitigate water quality impacts (Appendix F, "Water Resources").

Witnesses for Applicant and Staff testified that the water requirements for this project will not significantly impact the region's water resources if condition 1, as specified in jointly sponsored testimony (Exhibit 6, p. 3) is met. Water will not be obtained from surface supplies or streams; rather the initial supply of cooling tower water will be from local purchases or DWR's projects (RT, 1135).

In addition, the Staff witness sponsored portions of the RDEIR (p.97), which stated the project would have minimal impacts on water quality if: 1) the surface drainage system has capacity to convey a one-hundred year flood and 2) Applicant completely paves and grades the plant site to prevent percolation of accidental spills into the groundwater basin.

Witnesses for Applicant and Staff testified that two main environmental impacts may result from accelerated soil erosion at the site: 1) loss of the soil resource itself (with an associated loss of watershed and biological habitats); and 2) degradation of the water quality of High Valley and Kelsey Creeks by sediment deposition (with the consequent adverse impact on beneficial uses of those waters). Both parties, however, presented evidence to show that these impacts could be controlled at acceptable standards, and will meet applicable laws and regulations if mitigation measures and conditions specified in Appendix F are met (RT, 1194).

Witnesses for Applicant and Staff testified that if the mitigation measures specified in Appendix F ("Safety") are met, transportation and disposal of toxic waste material will avoid adverse environmental effects and comply with all applicable standards, ordinances and laws (RT, 1247).

3. Biological Resources

The FEIR indicates that the primary impact on vegetation associated with the proposed project will result from 1) direct disturbance or removal of vegetation during construction and maintenance activities; and 2) aerosol deposition of toxic substances on vegetation or accumulation of these substances in the soil (cooling tower drift) (see Revised DEIR, p. 103). Staff and Applicant witnesses testified that use of a drift eliminator system for the

cooling tower with a drift loss rate of 0.002 percent of the circulating water rate and use of the EIC abatement system will probably reduce loss of vegetation from boron in the cooling tower drift to a level less than other existing units in the Geysers region (RT, 1163). To ensure this result, Staff and Applicant proposed that a vegetation stress monitoring program be conducted during the first three years of plant operation (Exhibit 5, p.2), and that if significant stress, damage or changes are identified, the Applicant, Staff and California Department of Fish and Game will meet to decide what further mitigation measures are necessary. In response to inquiries by the Public Advisor on behalf of the Cobb Valley Residents Association Concerned and questions from the Committee, Applicant's witness testified that monitoring would continue beyond the first three years if necessary but that six years of experience at other sites having a drift rate of approximately .2 percent indicates that significant vegetation stress is observable, if at all, within the first three years (RT, 1163).

The Final EIR (p. 104, Revised DEIR) states that "the primary impacts on the area's wildlife will occur as a result of vegetative loss, disturbance from construction activities, and release of toxic substances." Assuming that the mitigation measures proposed by the Applicant and Staff in related areas (e.g., Soils, Biological Resources, Water Resources and Quality) are implemented, the Final Environmental Impact Report concludes that no significant impacts on wildlife or vegetation will occur. The FEIR and Applicant and Staff witnesses all indicate that although the American Peregrine Falcon, Golden Eagle and Ringtail have been observed in the Geysers-Calistoga KGRA, there is no evidence to suggest that this plant site area is a significant breeding or feeding region for these species. Staff and Applicant witnesses testified that if condition 1 (Exhibit 5, p.8) is met, the project will be environmentally acceptable and compatible with applicable laws, rules and regulations.

COMMITTEE FINDINGS AND CONCLUSIONS

The DWR Geothermal Bottle Rock Project can be designed and constructed to operate in compliance with all applicable standards, ordinances, and laws, including air and water quality standards, insofar as the potentially impacted environmental resources are concerned. The measures to ensure adequate mitigation of impacts to environmental resources and the program for implementing such measures have been identified and are contained in Appendices A and F.

C. Public Health and Safety

Evidence presented on this broad category consisted of testimony and exhibits on the topics of public health and safety, worker health and safety, noise impacts, and additional safety-related matters. With regard to public and worker health both parties asserted that there will be no adverse impacts if the conditions enumerated in Appendix F ("Safety") are met.

The power plant will emit both regulated pollutants (those subject to established ambient air quality or emissions standards) such as H_2S, sulfur dioxide, particulate matter, sulfates and radon-222 (^{222}Rn); and nonregulated pollutants (those for which there are no presently established standards) such as mercury, arsenic, boron, and ammonia. The hydrogen sulfide abatement systems can produce emissions of anthraquinone disulfonic acid (ADA), vanadium, copper, sulfates, and other particulate matter. Staff witnesses also sponsored the "Health and Safety" portion of the Revised DEIR which concludes that public health will be protected if the conditions proposed by the Applicant and the requirements existing under current law are met. The Revised DEIR recommends, and the Applicant agrees, that DWR will consult with Cal/OSHA to evaluate the adequacy of its program to protect worker health.

Witnesses for both Applicant and Staff identified the following safety factors: fire; hazardous, toxic and flammable materials; and worker safety; and testified that with conditions indicated in Appendix F ("Safety") the project will conform with applicable laws, standards, and ordinances.

Testimony introduced by Staff and Applicant established that the highest plant construction noises will be caused by large earth moving equipment but that such activity will be temporary and performed during daylight hours (7 a.m. to 10 p.m.) whenever possible. Normal operating noise will be barely audible

at the nearest sensitive receptor. Staff and Applicant witnesses jointly proposed mitigation measures (Appendix F, "Noise") which they testified would conform noise levels to applicable laws, regulations and ordinances. Commission staff, in the Revised DEIR, conclude that the noise impact of this project will be acceptable so long as the mitigation measures proposed by Applicant are implemented (Revised DEIR, p.131).

COMMITTEE FINDINGS AND CONCLUSIONS

The DWR Bottle Rock Project can be designed and constructed to operate without causing significant adverse impacts to public health and safety. The measures to ensure adequate mitigation of impacts to public health and safety and the program for implementing such measures have been identified and are contained in Appendix F of this Decision. With such implementation, the project will cause no significant adverse impacts to public health and safety.

D. Plant and Site Safety and Reliability

The area of safety and reliability examined the topics of geotechnical, seismic hazards, civil and structural engineering, systems engineering and reliability.

Staff and Applicant jointly sponsored testimony and exhibits, including portions of the Revised DEIR, showing that, except for the location of the proposed cooling tower, no hazardous or adverse geologic conditions exist at the project site. As to the location for the cooling tower, both parties explained that final determinations of safety cannot be made until site preparation begins. Staff and Applicant testified that geological factors can be mitigated and construction completed in compliance with applicable law if the conditions in Appendix F ("Geotechnical") are met (RT, 1187-91).

Staff and Applicant witnesses testified that the design of facilities will withstand a level of earthquake shaking which has a 10% probability of being exceeded during a 30-year facility lifetime. The 10% exceedance probability corresponds to a peak ground acceleration value of 0.22g. Staff witness pointed out that currently there are no legal standards which establish an acceptable level of seismic risk (RT, 1409).

Staff and Applicant witnesses testified that if the conditions in Appendix F ("Geotechnical") are met, the proposed project will use civil engineering standards that conform to applicable law (RT 1423). Testimony highlighted project plans for achieving slope stability and foundation construction. Witnesses also testified that if the conditions in Appendix F ("Structural Engineering") are implemented, the project's structural engineering plans will conform to applicable laws (RT, 1420-25).

With respect to systems engineering, Staff and Applicant witnesses testified that the plant will be designed in accordance with appropriate design criteria (RT, October 10, 1980) and concluded that the Applicant's plans are acceptable provided that condition #1 (Exhibit 22, p. 2) is implemented.

With respect to plant reliability, Applicant and Staff witnesses testified that the plant will operate with an 80 percent capacity factor (lifetime average) and an availability factor of 90 percent. All major components have planned redundancies of 100 percent capacity except the cooling water pumps (50 percent), hydrogen coolers (50 percent) and steam jet ejectors (33-1/3 percent). Subject to conditions in Appendix F ("Reliability"), both parties stated that system reliability is adequate (RT, 1125-27).

COMMITTEE FINDINGS AND CONCLUSIONS

The DWR Bottle Rock Project can be designed and constructed to provide a reasonably safe and reliable source of electrical power if the measures and conditions contained in Appendix F are implemented.

E. Socioeconomic, Land Use, and Cultural Concerns

The Public Resources Code requires the Commission to assess impacts of a proposed project upon resources closely affecting the human environment. Applicant and Staff identified the following socioeconomic issues affecting this proposed project; land use, visual impacts, labor force impacts, school population impacts, taxation, and realignment and construction of Bottle Rock Road (offsite impacts). Witnesses testified that with respect to land use, the plant will be located on the Francisco Leasehold which is located in an unclassified zoning district which allows geothermal development upon receipt from the County of a use permit. Evidence was introduced to show that this permit was obtained from the Lake County Board of Supervisors on February 19, 1980. Staff witness was cross-examined by two intervenors, the Cobb Valley Residents Concerned Association and Camp Beaverbrook; Applicant's witness was cross-examined by the Cobb Valley Residents Concerned Association.

In the area of visual impacts, Staff and Applicant witnesses identified a number of mitigable impacts (RT, 1298) and singled out cooling tower plume as the only nonmitigable impact. Staff witness explained that although the size of the plume will be variable, it will not create a substantial visual intrusion with respect to the entire Cobb Valley area. Since, however, the determination of visual degradation is very subjective and because the plume cannot be mitigated and will occur in an area noted for its scenic quality, it could represent a significant visual impact.

With respect to labor force impacts (new workers entering the area of Cobb Valley as the direct result of geothermal development), Staff presented estimates that the cumulative peak demand for construction labor from all geothermal development currently planned for the Geysers KGRA (NCPA Units 1 and 2; PGandE Units 16, 17, and 18; DWR's Bottle Rock and South Geysers Projects; and

SMUD's Unit 1) would total approximately 610.*

Staff assumed that some of the workers would be part of a large resident work force already residing in the Sonoma - Lake Counties area as a result of prior geothermal activity and that most of the new immigrating workers would reside in Lake County. The total population increase in Lake County attributable to the cumulative geothermal development was estimated by Staff to be approximately 280, of which approximately 90 are expected to be school residents.

Evidence was introduced to show that the Middletown Unified School District, which is expected to be directly impacted by new residents working on the Bottle Rock Project, has already attained enrollment capacity. To mitigate this impact, the District has obtained the necessary funding and is seeking property for construction of new facilities. During the evidentiary hearing on October 9, 1980, Applicant submitted a letter by Ronald B. Robie, Director of DWR, dated September 26, 1980, supporting the District's negotiations with other governmental agencies for school property (RT, 1321-22).

Applicant and Staff addressed the issue of taxation by pointing out that DWR will be constructing a state-owned, and therefore tax exempt, power plant.** The County of Lake proposed a mitigation to the loss of revenue (ad valorem property taxes applicable to non-state developers) by having the Commission impose as a condition to granting the application for certification a requirement that DWR, "...pay to the County of Lake a sum equal to the total amount of ad valorem property taxes it would have paid but for the exemption of Article XIII, Section 1 of the Constitution of the State of California to be distributed by the County of Lake to those local agencies who would otherwise be entitled to them pursuant to the provisions of Revenue and Taxation code sections 2201 et. seq." To support its contention that the Commission has

*FEIR (p.25) errata to Revised DEIR (p.138).

**The steamfield is, however, subject to taxation.

the legal authority to impose such a condition to the granting of the AFC, the County submitted the brief at Appendix B. Both Staff and Applicant opposed the County of Lake's proposed condition for the reasons expressed in their briefs at Appendix B. As a result of this dispute, the Committee requested and received an Opinion from the General Counsel of the Commission (also included at Appendix B). The General Counsel disagreed with the position of the County of Lake and stated, in part:

* * * * *

> "In my opinion there is insufficient indication in the Warren-Alquist Act, even given the need to give it a 'liberal construction' (Pub. Res. Code § 25218.5), of any legislative intent to delgate to the Commission the power to require another state agency to pay local government a fee in lieu of the taxes which the state agency is constitutionally exempt from paying.
>
> The Energy Commission does have very substantial authority to impose conditions on certification of facilities, in order to mitigate adverse environmental and economic impacts of the facility and in order to carry out critical energy policies established by the Commission in its planning function pursuant to Public Resources Code sections 25300, et. seq. (See Pub. Res. Code Sections 25514(d), 25523). Where the clear purpose of a condition is to insure (1) that provision of needed electricity will not unduly harm environmental quality, (2) that California will have a reliable supply of electricity at a reasonable cost, or (3) that limited carrying capacities will be stretched as

far as possible, there is a strong basis for finding legislative intent in the opening sections of the Act (Pub. Res. Code Sections 25000-25507) to provide Commission authority to impose the condition.

Where, as in this case, the purpose of a condition is to address some more general societal concern, not directly addressed in the Warren-Alquist Act, the Commission's authority is subject to question. Here the goals of environmental protection and reliability of electricity supply could, at most be incidentally benefitted by county expenditure of the in lieu payments, but the main goal is clearly to aid a local government with its fiscal problems. Nothing in the purposes or provisions of the Warren-Alquist Act suggests that the Legislature intended to have the Commission address this problem in carrying out its facility certification function."

Additionally, the General Counsel notes that his opinion does not leave Lake County without a remedy since it is his belief that the county may "raise its concern in the Legislature which does have the power to cure any unusual inequities resulting from application of Article XIII, section 1* of the Constitution in the context of geothermal development by the Department of Water Resources."

As to impacts on Bottle Rock Road (offsite impacts) Staff and Applicant witnesses testified that an agreement for realignment and reconstruction of this road has been reached between the Applicant and the County of Lake. The Lake

*Amended to Art. XIII, Section 3, November 5, 1974.

County Public Works Director testified that the agreement will be beneficial to the local area because it will lessen future maintenance costs and reduce anticipated safety hazards. He stated that while the average speed of traffic will increase slightly (1-2 mph), traffic volume is expected to significantly increase during the construction phase.

Ron Garrison, representing the Camp Beaverbrook intervenor, testified that use of the Bottle Rock Road during construction would expose the Camp's youth participants, who number about 100 at all times during a three month summer period, to heavy construction equipment. He stated that in order to reach a nature observation area camp participants must walk along the Bottle Rock Road for approximately 1/16 mile. Applicant's witness and the Lake County Public Works Director testified on cross-examination that Camp Beaverbrook's concerns for the children's safety could be met with the installation of flashing lights with signs warning of the 1/16 mile section and the painting of a cross-walk. Applicant's witness also testified that DWR is engaged in two CEQA proceedings and prior to construction will bring to Lake County's attention the safety concerns of Camp Beaverbrook.

With respect to all of the above concerns, Staff and Applicant witnesses testified that if the conditions specified in Appendix F ("Socioeconomics") are implemented, the socioeconomic and land use impacts will be environmentally acceptable and in conformity with applicable laws, standards and regulations. With respect to the labor force impacts, Staff will continue to monitor the enrollment growth at the Middletown Unified School District and the Applicant has agreed to participate in a comprehensive planning program to mitigate all growth-induced impacts on public services as a result of continued geothermal development, if such a program is deemed necessary by the Commission (RT, 1294-1326).

Staff and Applicant witnesses testified that with respect to cultural resources, a recovery program for archaeological site CA-LAK-610 has been submitted to ensure that with implementation of the conditions in Appendix F ("Cultural Resources", Finding #7) the impact is acceptable and in accordance with applicable laws, standards and ordinances (RT, 1425-30).

COMMITTEE FINDINGS AND CONCLUSIONS

With respect to land use, visual impacts, labor force impacts, school population impacts, and cultural resources, the preponderance of evidence establishes that if the conditions specified in Appendix F are implemented, the project will be environmentally acceptable and in conformity with applicable laws, standards and ordinances.

With respect to the proposed condition by the County of Lake to mitigate the loss of tax revenue due to operation of the power plant by a state agency, the Committee notes that no issue of fact was involved and that all parties agreed that the proposed condition raised a question of law. On that question the Committee accepts the Opinion by the General Counsel as determinative, thus rejecting the county's proposal.

With respect to the impacts of Bottle Rock Road, new evidence was introduced by the Camp Beaverbrook intervenor to identify possible safety hazards arising from increased traffic during construction which could represent a danger to summer camp youth participants. Because of the Applicant's agreement to pursue this concern in CEQA hearings, the Lake County Public Works Director's agreement that mitigation measures could be developed

if necessary (flashing lights, signs and cross-walk), and the Camp Beaverbrook intervenor's expression of satisfaction with such measures, the Committee finds the socioeconomic impacts acceptable provided that the Applicant implements the signs and cross-walk as safety measures, as well as provide any other appropriate mitigation measures identified during subsequent CEQA proceedings in Lake County.

F. Transmission Tap Line

Staff and Applicant witnesses testified that the project will utilize a 230 kV transmission line from the 55 MW Bottle Rock power plant on the Francisco leasehold to the PG&E Unit 17 power plant tap line (RT 1196). Written testimony focused on an economic analysis of six transmission route configurations, specifically excluding an assessment of environmental factors. Based on this analysis, Staff and Applicant jointly-sponsored a finding that "...if Bottle Rock is connected with Unit 17 and if NCPA 1 is subsequently constructed, it will be uneconomical for NCPA 1 to connect to Bottle Rock" (Exhibit 9, p.2).

Notwithstanding this consideration, Staff and Applicant both concluded that "Future development in the vicinity of the Bottle Rock power plant is uncertain at this time. The proposed route for the Bottle Rock transmission line from Bottle Rock to PG&E Unit 17 is economically acceptable if (1) the Applicant or another developer does not connect a future unit on either of the other leaseholds to which the Applicant has rights for the Bottle Rock line, and (2) NCPA 1, if constructed, does not connect to the Bottle Rock line. Otherwise Unit 11 would be the preferable termination point, according to the analysis in Finding 4".* (Exhibit 9, p. 3).

On cross-examination by NCPA, Staff witness corrected his testimony from September 18, 1980, by stating that the transmission line route from the proposed site to Unit 11 is .7 miles longer than the route to Unit 17. Proposed Findings and Conclusions offered by the NCPA intervenor

---

* Finding 4 (Exhibit 9, p. 1) reads: "CEC staff and consultant Dr. Hans Puttgen have conducted a transmission engineering economic analysis of six transmission configurations for the area, assuming varied degrees of development. Environmental factors were not included as a part of this particular study."

at the October 9, 1980 evidentiary hearing were rejected by the Committee due to the intervenor's failure to notice their presentation at the previous Prehearing Conferences, or to provide at least ten days' notice to the other parties. In addition, NCPA offered no witnesses to support the validity of the proposed findings.

At the September 18, 1980 evidentiary hearing Applicant's witness specifically testified that during the NOI proceedings the various possible transmission line routes were evaluated on the basis of environmental advantages and that the jointly-sponsored route (to PG&E 17) was determined to be one of four acceptable alternatives (RT 1198-99).

The FEIR, p. 30 (embodying p. 153, Revised DEIR) states:

> "To determine the best route from the Bottle Rock site to Geysers 17, DWR evaluated various routes from an engineering, economic, and environmental standpoint. DWR identified and evaluated three potential routes from Bottle Rock to Unit 17 and one route from Bottle Rock to Unit 11. DWR chose the route shown on figure 4 (to Unit 17) primarily because it required the least amount of transmission and access roads already exist along portions of this route and environmental damage would be minimized. CEC staff are concerned that the proposed interconnection point and transmission facilities do not adequately consider the overall transmission needs of the area. An adequate plan should be developed to consider transmission needs (with regard to adequacy of capacity, transmission losses, reliability and costs), for DWR as well as future plants."

The Staff and Applicant, subject to the conditions enumerated in Exhibit 9, pp.1-4, presented testimony that a line from the Bottle Rock site to PGandE Unit 17 is environmentally acceptable and in conformity with all applicable laws, standards and ordinances.

In the AFC (IX-1 through -4), Applicant explained its choice of the transmission line route to PGandE Unit 17 as being based on an analysis of various alternative routes. The AFC states, "The transmission route was selected on the basis of minimizing environmental and economic impacts." To support this evaluation the AFC incorporated by reference the analysis submitted in the NOI which states in part:

> "However, before deciding which route may be the most advantageous from an engineering, environmental and economic viewpoint, the Department evaluated the leasehold and surrounding environs to identify any potential conflicts in land use. Since the Francisco leasehold and neighboring leaseholds are devoted to geothermal development, with the exception of environmental concerns, there is no problem locating transmission corridors in the area.
>
> The Department then analyzed the various features of the region which would be affected by transmission. These features included: the biological environment; slope stability; geologic information, etc.
>
> Once the environmental features were analyzed, the Department identified and evaluated three potential routes from the Bottle Rock power plant to PGandE's Unit 17 and one

proposed route from Bottle Rock to Unit 11. Figure VI-2 shows the various routes the Department evaluated. Table VI-1 shows the segments of the routes and their respective lengths. The table also shows elevations of the segments.

* * * * * * *

At the present time, long range development of geothermal power generating units in The Geysers are being planned by PGandE, the Department, and Northern California Power Agency (NCPA). Through the 1980's, PGandE contemplates expansion of their geothermal field to 2000 MW while the Department is contemplating installation of 165 MW and NCPA at present is contemplating installation of 386 MW of capacity. PGandE has formulated and announced plans for upgrading and expanding the existing transmission system of the area to meet basic requirements for 2000 MW of capacity. In order for all parties at The Geysers, including NCPA and the Department, to best proceed, an overall development plan is important to coordinate transmission plans to the mutual benefit of all parties. To this end, the Department has been negotiating with PGandE for transmission service and has signed a stipulation to work with PGandE on reaching an agreement for this service. However, the Department and NCPA have retained R. W. Beck and Associates to develop additional alternatives which are both economically and technically feasible. It is intended that these plans be coordinated, to the extent possible, with the PGandE plans as will be most beneficial to all parties and to minimize impacts and other considerations at The Geysers.

Until this study is completed the Department will continue to proceed with the intention of building a transmission line to either PGandE Unit 17 or Unit 11."

COMMITTEE FINDINGS AND CONCLUSIONS

Although questions were raised as to the extent of investigation conducted to evaluate the environmental impacts of the Applicant's proposed route, it is important to distinguish Staff's expressed reluctance. First, during the evidentiary hearings, the Staff witness explained that the ranking of possible routes on the basis of economic preferability did not include an assessment of environmental impacts. When this qualification is noted and the Applicant's evidence that the proposed route will run primarily along existing roadways is weighed, the Bottle Rock to PGandE Unit 17 route can be found environmentally acceptable. Secondly, it is important to note that the preferences for transmission routes expressed in the FEIR are similarily oriented to non-environmental issues, especially KGRA-wide capacity and economics. Thus, in weighing all evidence submitted during the proceeding, the Committee determines that the Applicant's proposed route conforms to applicable laws, regulations and ordinances, and is environmentally acceptable provided that the mitigation measures specified in Appendix F are implemented.

Finally, the Committee would like to clarify that in adopting the jointly-sponsored Findings, Conclusions and Conditions, all references to NCPA which would suggest that this Decision will bind that utility to any specific KGRA-wide transmission line routing plan have been rejected. Because of the broad nature of transmission system planning the routing of an NCPA transmission line is more appropriately considered in an NCPA or generic proceeding and the Committee does not choose to constrain these future proceedings by this Decision.

APPENDIX A

Lake County Air Pollution
Control Officer's Determination
of Compliance (with attached
errata).

ERRATA SHEET FOR

LAKE COUNTY AIR POLLUTION CONTROL DISTRICT

DETERMINATION OF COMPLIANCE

DWR/BOTTLE ROCK GEOTHERMAL POWER PLANT

10 October 1980

Robert L. Reynolds, Air Pollution Control Officer
Donald L. Saderlund, Deputy APCO/Meteorologist

ERATA

Condition #2

Change ...concurrently operating major components.

To .....concurrently available major components.

Condition #3

...components.

...components. If such design criteria can not be established, abatement systems shall be retrofitted as necessary to achieve performance at this level.

Condition #6, line 3

...to the power plant during direct venting

Add .....to the power plant during direct venting of untreated non condensable gases in the steam.

Condition #6

...cold start-ups are to occur and ...

Add .....cold start-ups in excess of 5# H_2S/hr are to occur and ...

Condition #7, line 3

...stacking.

Add .....stacking. Alarm/trip conditions noted with an asterik have a separate alert and trip alarm function and those alarm/trip conditions without an asterisk are coincident alarm/trip functions. Functions with asterisks include:

Turbine Generator Unit #3, #4, #5, #7, #8, #9, #10, #11, and #12

Condensers - 1, 2 and 3
Cooling Tower - #1
Electrical System - #6, #13, and #14

Condition #9

Add .....If for considerations of safety, DWR can not comply with such a specific request, DWR shall forward in writing within one week a letter explaining the reasons entry within one hour could not be allowed the LCAPCD staff.

Condition #10, line 1

...DWR's approved for construction drawings of the EIC...

Add.....DWR's approved for construction drawings or other drawings acceptable to the LCAPCO of the EIC...

Conditions #10, line 4

...date.

Add.....date. DWR shall not be required to submit proprietary information unless specifically requested by the LCAPCO pursuant to section 91010, Title 17, California Administrative Code.

Condition #11, line 3

...before the finishing of final design of the power plant and abatement system.

Change....before finishing the final design of the hydrogen peroxide/catalyst abatement system.

Condition #14

Change to read...The access road from Bottle Rock road to the power plant shall be paved to ensure that the generation of fugitive...

Condition #15, line 1

...Within sixty (60) days of commerical operation...

Change....Within sixty (60) days after initial power production...

Condition #19, line 11

...impacts of the power plant upon...

Change....impacts caused by the Bottle Rock power plant...

Condition #21, line 10

...In the event that continuous...

Change....In the event that acceptable continuous...

Condition #21, line 5

Delete....(or ±1% of full scale),

Condition 21, line 9

Add.....Monitoring shall be required pursuant to Section 42303 of the California Health and Safety Code.

Condition 21, line 14

Add.....The Applicant shall on an annual basis after the date of the decision submit for approval by the LCAPCD, CEC and ARB a summary of the applicant's efforts to develop, research, let for contract to research, or let for contract to implement use of equipment, that is to be a likely candidate for a continuous condensate and non condensable gas monitor for hydrogen sulfide.

Page 10, line 20

...power plant shutdowns

Change to.power line losses.

Page 19, line 10

...3.6 millicuries/hr

Change....18 millicuries/hr

DOCKET
79-AFC-4
DATE: SEP 24 1980
RECD: SEP 26 1980

LAKE COUNTY AIR POLLUTION CONTROL DISTRICT

DETERMINATION OF COMPLIANCE

DWR/BOTTLE ROCK GEOTHERMAL POWER PLANT

24 September 1980

Robert L. Reynolds, Air Pollution Control Officer

Donald L. Saderlund, Deputy Air Pollution Control Officer/Meteorologist

Submitted by Robert L Reynolds

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TO: Department of Water Resources Committee of the
California Energy Development and Conservation Commission
Russell L. Schweickart, Chairman
Presiding Member of the Committee

The Lake County Air Pollution Control District hereby submits a positive Determination of Compliance for the Department of Water Resources Bottle Rock Power Plant, provided the twenty-three (23) conditions listed below are acceptable.

Signed Robert L Reynolds Date 24 September 1980
Robert L. Reynolds, APCO

Condition 1

Hydrogen sulfide (H_2S) emissions from the DWR/Bottle Rock power plant shall be limited to a maximum of five (5) pounds per hour during power plant generation and all possible generation outages. All untreated steam or condensate shall be returned to a treatment or re-injection point to ensure this level of emissions is maintained.

Condition 2

The atmospheric emissions control system (AECS) described in the AFC and revisions to the AFC, April 18, 1980, shall be utilized. The system as described, which constitutes the best available control technology, shall consist of the following concurrently operating major components:

a) An EIC system to reduce H_2S and other emissions prior to entering the power plant;
b) A surface condenser to facilitate the partitioning of H_2S into the noncondensable gas phase;
c) A Stretford unit as specified in the AFC to reduce the H_2S concentration in the noncondensable gases to 10 parts per million by volume (ppm_v) or less;
d) Secondary condensate treatment which includes sufficient hydrogen peroxide (H_2O_2) and catalyst injection and reaction time to ensure the power plant will comply with the emission limitation specified in Condition #1;
e) A turbine by-pass system sufficiently sized to accept 100% of full steam flow during generating outages so that the power plant emission control system can be utilized to treat steam normally stacked during the outage.

In addition,

f) The air emissions control system specified above shall be properly winterized.
g) If a solids removal system is necessary as a result of solids formation in the condensate, such facility shall be incorporated into the system.
h) In the event of Bottle Rock generation loss, an alternate source of power to enable the continued use of the air emissions control system specified above shall be available.

i) A stand-by generator capable of sustaining the EIC system shall be available and fueled with low sulfur fuel of 0.5% or less.

Condition 3

The major components of the air emissions control system (EIC, Stretford, and condensate abatement) shall incorporate a design to enable a 99% availability excluding scheduled maintenance on these individual major components.

Condition 4

Upon failure of H_2S abatement equipment, DWR shall curtail to a level necessary to comply with the five (5) lbs/hr H_2S emissions limitation or provide for a mechanism allowing an immediate determination of prevailing atmospheric conditions to enable the LCAPCO to make a decision as to whether it is acceptable to continue operation at a higher emissions level.

Condition 5

The cooling towers shall have a guaranteed drift rate of no more than 0.00002 as described in the AFC.

Condition 6

The off-gas vent to the atmosphere shall be used only during legitimate emergencies and to enable the cold start-up of the power plant turbine. Steam flows shall not exceed 25,000 lbs/hr to the power plant during direct venting. The turbine by-pass shall be used if possible to avoid direct venting into the atmosphere of undiluted non-condensables. The LCAPCD shall be notified when cold start-ups are to occur and may cancel such activity if deemed necessary.

Condition 7

DWR shall install alarms and switches on the following units to ensure immediate corrective action is initiated to prevent outages and potential stacking.

Turbine Generator Unit

1. Excessive vibration switch, alarm and trip;
2. Lateral motion switch on the turbine shaft, alarm and trip;
3. High lube oil temperature switch, alarm and trip;
4. Low lube oil pressure switch with indicating light in control room;
5. Low lube oil sump level switch, alarm;
6. Overspeed switch, alarm and trip;
7. High hydrogen gas temperature and low purity hydrogen alarm and trip;
8. Seal oil level switch and alarm;
9. Differential pressure switch to prevent low differential pressure between the seal oil and hydrogen pressure, alarm and trip;
10. Generator moisture detector and alarm;
11. Vacuum switch to prevent low vacuum in the seal oil detaining tank, alarm and trip;
12. Turbine bearing metal temperature alarm and trip.

Condensers

1. Pressure switch to prevent condenser pressures from exceeding design levels, alarm and trip;
2. Condensate level switches to start and stop pump, prevent

excessively high condensate levels in hot well;

3. High or low condensate levels alarms.

Cooling Towers

1. Float switches and indicators to start and stop the pump in the cooling tower overflow basin and provide alarms;
2. Vibration switches and alarms on each cooling tower fan.

Electrical System

1. Generator differential current trip and alarm;
2. Generator over-current trip and alarm;
3. Generator ground fault trip and alarm;
4. Generator anti-motoring trip and alarm;
5. Generator field ground trip and alarm;
6. Generator stator over temperature alarm and trip;
7. Loss of excitation trip and alarm;
8. System negative phase sequence trip and alarm;
9. Transformer differential current trip and alarm;
10. Transformer over-current trip and alarm;
11. Transformer ground fault trip and alarm;
12. Transformer sudden pressure trip and alarm;
13. Transformer winding temperature alarm;
14. Transformer oil temperature alarm.

Condition 8

The LCAPCD shall be notified within one hour following any power plant outage or malfunction resulting in emissions in excess of five (5) pounds per hour H_2S at (707) 263-2391, 263-3121, or a number to be provided by the LCAPCD. DWR shall maintain a log of power plant outages along with explanations for the outages and malfunctions. In the event that power plant outages recur because of equipment malfunctions that are not indicated by alarms, DWR shall retrofit alarms on the malfunctioning equipment as possible. The log shall be available for inspection upon the request of the staffs of the LCAPCD, ARB, CEC, and EPA.

Condition 9

The power plant abatement system shall have an operator on site at all times. The operator must be able to immediately take necessary corrective action in the event of power plant outage or equipment malfunction in order to meet the conditions of this Determination of Compliance. DWR shall provide a telephone number at which the Bottle Rock operator or a representative can be reached to ensure LCAPCD entry for inspection purposes within one (1) hour of notification.

Condition 10

DWR's approved-for-construction drawings of the EIC system, Stretford unit, turbine by-pass, and secondary abatement (condensate treatment) system shall be submitted to the LCAPCD and CEC for comment and review at the earliest possible date.

Condition 11

DWR shall submit to the LCAPCD, ARB, and CEC the results of the pilot test program performed by Bechtel National, Inc., no later than February 1, 1982, or within one month before the finishing of final design of the power plant and abatement systems.

Condition 12

Before the start-up of the power plant, DWR shall submit to the LCAPCD certification by EIC Corporation that DWR's operators have been trained to operate and maintain the EIC system in accordance with EIC's approved procedures.

Condition 13

Although the applicant is to be licensed upon the use of BACT as described in Condition #2, DWR may use other means to comply provided the LCAPCD, ARB and CEC are provided performance data indicating the other means are capable of achieving the same emissions limitations and reliability as those defined in Condition #2. Any such changes shall be decided at a properly noticed public hearing to be convened jointly by the LCAPCD and CEC, no later than two years prior to anticipated power plant operation at which the ARB and all intervenors shall be invited to participate. The LCAPCD concurrence upon any changes must be given.

Condition 14

All roads to and from the power plant shall be paved to ensure that the generation of fugitive particulate matter is minimized.

Condition 15

Within sixty (60) days of commercial operation, DWR shall demonstrate that the applicable emissions limitations are being maintained during normal power plant operations. DWR shall submit a detailed performance test plan to the LCAPCD at least thirty (30) days prior to such tests. Such plans shall also be designed to determine the particulate emissions rate and components of particulate emitted. DWR's proposed test plan must receive LCAPCD and CEC staff approval before such tests may be conducted to determine compliance.

Safe sampling access and ports to enable the LCAPCD to gather samples from the freshly treated condensate, cooling tower stack, treated gas from the Stretford system, and treated steam from the EIC system shall be provided.

Condition 16

Reports shall be issued quarterly to the LCAPCD detailing: a) hours of operation; b) any periods for which abatement equipment malfunctioned and the action taken; c) chemicals utilized for treatment of condensate; d) periods of scheduled and unscheduled outages and the reasons for such outages; and e) summary of the output of continuous emissions monitors with explanations of any irregularities.

Condition 17

Within ninety (90) days after commercial operation DWR shall file with the LCAPCD an application for a Permit to Operate together with all appropriate information to ensure compliance with the certification and submit permit fees.

Condition 18

DWR shall take all reasonable measures to comply with any future air emittent or ambient standard or guideline adopted for present non-criteria pollutants (i.e., mercury, boron, arsenic, radon^{222}, etc.) by responsible State or Federal agencies and/or comply with guidelines established as part of DWR/Bottle Rock's certification by the California Energy Commission.

Condition 19

DWR shall promptly fund reasonable studies or tests as required by the LCAPCO to ascertain the impact of DWR/Bottle Rock when operating, specifically at the residence located approximately 1900 ft east of the Francisco pad, should the resident in good faith file complaints with the LCAPCO indicating the air quality is worsening or becoming a nuisance or unhealthful as a result of Bottle Rock's operation. These studies shall include, but not be limited to, monitoring at the residence to determine H_2S levels and particulate or other components which are believed or known to be in geothermal steam, tracer tests or source tests. Such studies shall be approved by the LCAPCO prior to initiation. Reasonable mitigation steps shall be applied upon request of the LCAPCO to attempt to remedy any unlawful impacts of the power plant upon the residence.

Condition 20

The incoming steam to the power plant shall be analyzed quarterly and reported to the CEC and LCAPCD for radon^{222} and its daughters, mercury, arsenic, silica, boron, benzene, ammonia, and total suspended solids for the first two years of operation. The results of these tests shall be reviewed by the LCAPCO to determine if thereafter annual testing will suffice. DWR may join with the steam supplier in performing such tests. Results of any tests performed upon the cooling tower sludge shall also be forwarded to the LCAPCD.

Condition 21

H_2S emissions shall be monitored continuously by measuring total volume/flow rates and H_2S concentrations at the following locations: a) outlet of the EIC system; b) outlet of the Stretford unit; and c) in the condensate. A log of such monitoring shall be maintained and be made available to LCAPCD staff upon request. The devices must have accuracies of ± 1 ppm (or $\pm 1\%$ of full scale), provide measurements at least every 15 minutes, and be accessable to LCAPCD staff. Flow rate measuring devices must have accuracies of $\pm 5\%$ at 40% to 100% of the total flow rate and calibrations must be performed at least quarterly. Calibration records must be made available to LCAPCD staff upon request.

In the event that continuous monitors are not available, DWR shall conduct testing no less than once every thirty (30) days to ensure the efficiencies of the H_2S abatement systems are being maintained. The testing procedure used to determine compliance must be approved by the LCAPCO. A log of such testing shall be maintained and be available to LCAPCD staff upon request.

In either case, a summary of the monitoring and/or testing shall be forwarded to the LCAPCD every three (3) months.

Condition 22

DWR shall, at the request of the APCO, install, operate and maintain an on-site meteorological station capable of determining wind direction, wind speed, standard deviation of the direction, and temperature. Such data shall be furnished to the LCAPCD on a monthly basis in an hourly/day format and quarterly in a summary format acceptable to the APCO.

Condition 23

Compliance monitoring shall be conducted for a minimum one (1) year period before initial operation and one (1) year period after initial operation. Constituents to be monitored include arsenic, boron, mercury, radon^{222}, benzene, silica, and particulates in addition to H_2S. Constituents shall be measured both as suspended aerosols and fall-out. Monthly composite samples of fall-out shall be collected using a wet/dry collector. Constituents other than H_2S may be measured every sixth day, per the ARB particulate sampling schedule. DWR, CEC, and LCAPCD shall agree upon methods used in sampling and analysis. At the end of the indicated period, the monitoring program will be reviewed by the APCO and the feasibility and necessity for continuance determined. The site for such monitoring shall be in the Cobb Valley area unless DWR and the LCAPCD agree upon a mutually acceptable alternative site.

If DWR enters into a combined effort with other developers or an alternative monitoring program acceptable to the LCAPCD and CEC, this condition shall not be exercised.

Conclusion

A review of the original and additional materials submitted during the AFC and NOI process have resulted in the issuing of a positive determination of compliance (DOC) for DWR/Bottle Rock. Conditions attached to the DOC will ensure that the DWR/Bottle Rock project will not have a significant detrimental effect on air quality and that potential air quality problems will not go unaddressed.

A review of tracer tests, coincident meteorology, existing control strategy, and future development indicate that DWR/Bottle Rock will contribute to expected exceeds of the CAAQS for H_2S but in an amount less than 5 ppb. The heaviest singular contribution will occur during subsidence inversion conditions similar to Test #5 in an amount of approximately 10 ppb H_2S. This impact will occur concurrent to lower H_2S background and the combined level has been determined to be less than 25 ppb H_2S. A contribution of 5-10 ppb to an H_2S AAQS exceed is considered significant and would necessitate denial of the project. The raw tracer test #5 data were conservatively corrected for a release height of 750 ft instead of 500 ft using three approaches and resulted in an estimated impact of 10 ppb as opposed to the original 20.8 ppb (uncorrected).

Since DWR/Bottle Rock will contribute to an AAQS exceed, best available control technology must be required. The air emissions control system proposed by DWR/MCRGC constitutes best and full application of abatement technology. MCRGC, the steam supplier, and DWR have combined to not only address normal operation but to fully address upset operations in a manner which allows the District to omit stacking events in making a permit decision.

Concern over the potential deleterious effects of geothermal steam constituents other than H_2S, such as boron, radon^{222} and its daughters, mercury, arsenic, etc.,

will be addressed by periodic source tests and a monitoring program to establish a baseline in the localized area.

Introduction

It is the intent of the Lake County Air Pollution Control District to use this document to inform the public as well as for CEC purposes.

The LCAPCD as the responsible air regulatory agency is required to evaluate proposed projects which can have an actual or potential impact on ambient air quality. DWR/Bottle Rock obviously requires such an analysis and permitting decision by the LCAPCD. The Warren-Alquist Act, the subsequent ARB-CEC Joint Policy Statement, and the California Energy Conservation and Development Commission regulations (Title 20, Section 1752.3) affects the normal permitting process.

Section 1752.3 states

> **1752.3. Proposed Decision; Air Quality Findings.**
> (a) The proposed decision shall include findings and conclusions on conformity with all applicable air quality laws, including required conditions, based upon the determination of compliance submitted by the local air pollution control district.
> (b) If the determination of compliance concludes that the facility will comply with all applicable air quality requirements, the commission shall include in its certification any and all feasible conditions necessary to ensure compliance. If it concludes that the proposed facility will not comply with all applicable air quality requirements, the commission shall direct its staff to meet and consult with the agency concerned to attempt to correct or eliminate the noncompliance.
> (c) If the noncompliance cannot be corrected or eliminated, the commission shall determine whether the facility is required for the public convenience and necessity and whether there are not more prudent and feasible means of achieving such public convenience and necessity. In such cases, the commission shall require compliance with all provisions and schedules required by the Clean Air Act and compliance with all applicable air quality requirements which in the judgment of the commission, can be met.

It is in recognition of the above factors and the spirit of their intent that the LCAPCD has actively participated in the DWR/Bottle Rock proceedings.

DWR filed the AFC in July of 1979 with the California Energy Conservation and Development Commission. The AFC proceedings were suspended in January of 1980 at DWR's request as a result of the revelation that several environmental questions and apparent unmitigated impacts of the project remained unresolved. Of most concern was the inability to mitigate air quality impacts. After

suspending the proceedings, DWR and the steam supplier in a combined effort proposed innovative solutions through the use of redundant and new technologies. Additionally, the LCAPCD was funded to further study and characterize steam quality on the Bottle Rock leasehold and has been assured by both parties that an adequate monitoring program will be funded.

The new proposed atmospheric emissions control system consists of four major components: 1) Stretford/surface condenser; 2) condensate abatement using H_2O_2/Fe·HAA; 3) turbine by-pass; and 4) an EIC upstream abatement system.

The District has, on several occasions, stated its concerns in writings and at public meetings. The project is going to be extremely difficult to construct and operate in a fashion which will not cause, on occasion, undesirable air quality impacts; however, DWR/MCR has initiated the necessary effort to minimize these concerns. Additionally, DWR/MCR's combined effort and commitment has brought about a new uncompromising attitude in the Geysers regarding the solving of technological problems with technology that is known to be available now through a cooperative effort, and not hoping to be able to retrofit later. This attitude by DWR and MCR deserves compliment and the District's full support in the efforts to ensure that the optimistic air quality objectives are achieved.

Included within this document is pertinent information on matters relating to air quality and the potential air quality degradation to be expected as a result of DWR Bottle Rock's proposed construction and operation. Major topics covered include:

a) A determination of the likelihood of compliance with each applicable LCAPCD rule as the permit is conditioned;

b) The LCAPCD's determination that the proposed abatement system qualifies as Best Available Control Technology;

c) The assessment of the contribution of DWR's emissions to the prevailing

ambient air in the Cobb area; and

d) Certification conditions the District believes are necessary to assure conformance of the DWR project with air quality concerns, laws, and regulations.

Other information included in the report address the expected steam quality and potential emissions, the environmental setting, air quality and meteorological measurements, expected and worst possible impacts from the associated steamfield, and the need for monitoring of air pollutants. The reader is referred to the DWR/Bottle Rock Environmental Impact Report, NOI, Application for Certification and subsequently submitted material for more and general details on the subject project.

Project Description[a]

DWR proposes to construct and operate the Bottle Rock geothermal power plant to provide an economic and nonfossil fuel source of baseload electrical generation for the State Water Project (SWP).

The SWP provides water conservation, flood control, recreation, and fish and wildlife enhancement benefits throughout most of California. The SWP, which is designed to ultimately supply over four million acre-feet of water annually, includes water storage facilities, pumping plants, power generating plants, and a total of 540 miles (864 km) of aqueduct. Thirty-one public water agencies (Water Contractors) who wholesale and/or retail water to over two-thirds of the people in California, have contracted for water supplies from DWR. (DWR, 1978).

Electric energy is needed to operate the pumps of the SWP and the Bottle Rock power plant will provide a portion of this electricity requirement. Bottle Rock will expand the electrical generating capacity in The Geysers KGRA by 55 MW and reduce the need for constructing other types of electrical generating facilities, (i.e., coal, nuclear, gas turbine, combined cycle, or hydroelectric).

In The Geysers KGRA (Figure B), a geothermal development area contains steam wells, well pads, access roads, steam supply pipelines, power plants, and transmission lines connecting the power plant with the intended electricity service area. Ownership of the surface rights where the steam wells and power plant are located are privately or federally owned. For Bottle Rock, the surface rights and mineral rights are privately owned. The resource is leased to a steam developer who supplies the steam to an electric utility company. The steam supplier is also responsible for disposing of or reinjecting any steam condensate generated by the power plant. MCR Geothermal Corporation is the steam supplier for DWR's Bottle Rock project.

[a]The above portion of the project description is taken from the revised draft EIR produced by the CEC and dated August 1980.

Protection of air quality will be mitigated by installation and good faith usage of the EIC abatement system; turbine by-pass, Stretford H_2S abatement system and condensate abatement systems as proposed by DWR and MCRGC.

The location of the proposed project and predominate areas of impact can be seen on Figure A-1.

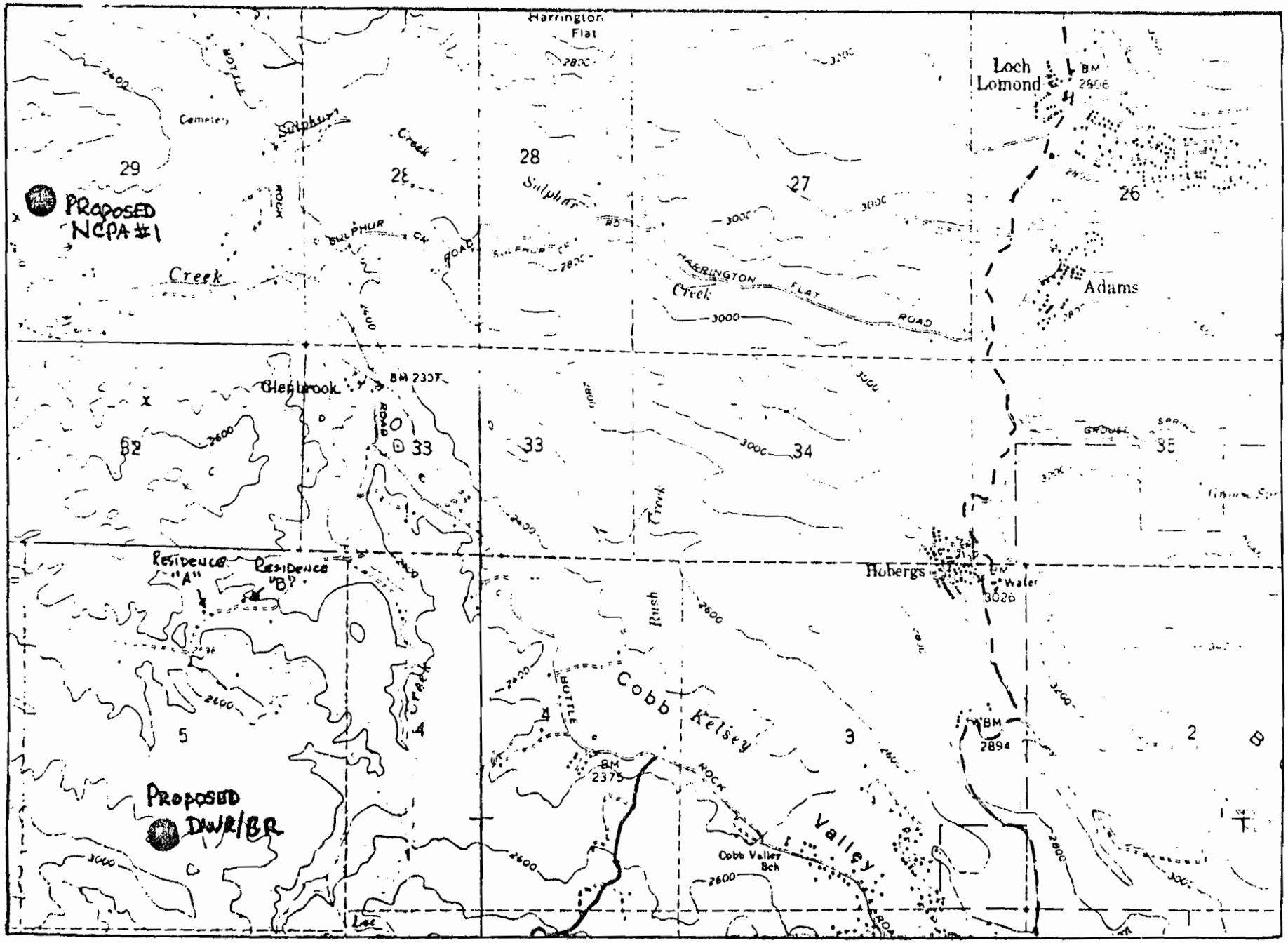

Harrington Flat
Loch Lomond
BM 2806
Cemetery
Sulphur Creek
29
28
27
26
PROPOSED NCPA #1
SULPHUR CK
ROAD
Sulphur Rd
HARRINGTON FLAT ROAD
Creek
Adams
Glenbrook
BM 2357
32
33
34
35
GROUSE SPRING
Hubergs
Water
3026
RESIDENCE "A"
RESIDENCE "B"
Rush Creek
Cobb Kelsey Valley
BOTTLE ROCK
BM 2375
BM 2894
5
4
3
2
PROPOSED DWR/BR
Cobb Valley Bch
Lake

Figure A-1

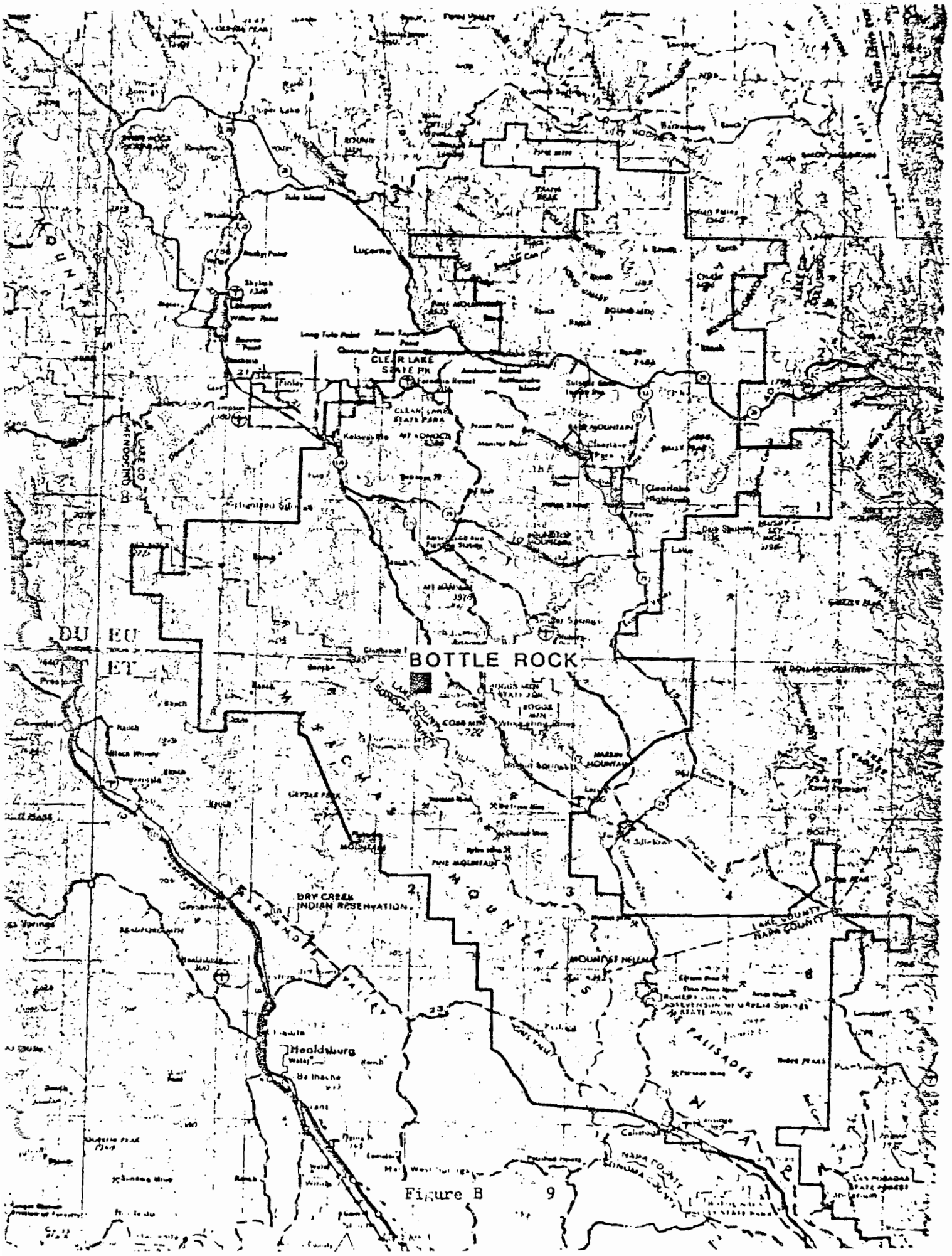
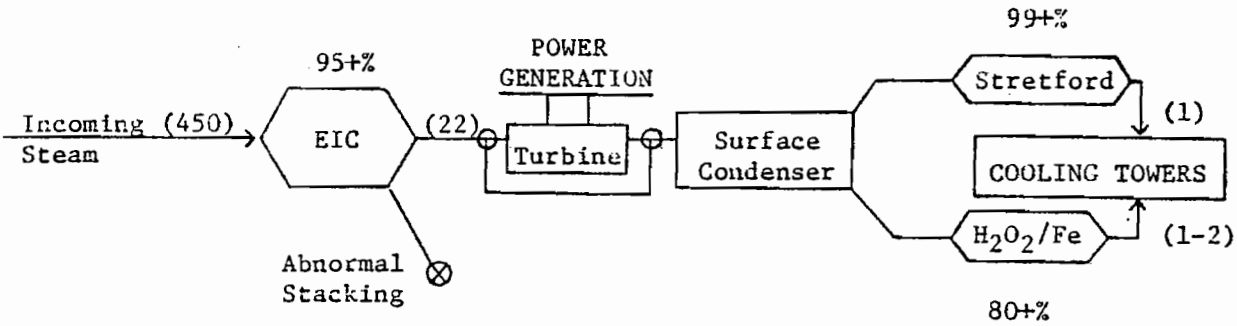

BOTTLE ROCK
Lucerne
CLEAR LAKE STATE PK
CLEAR LAKE STATE PARK
Kelseyville
Clearlake Highlands
DRY CREEK INDIAN RESERVATION
Healdsburg
LAKE COUNTY
NAPA COUNTY
SONOMA COUNTY
MENDOCINO CO
MOUNT HELENA
PALISADES

Figure B 9

Description of the Air Emissions Control System

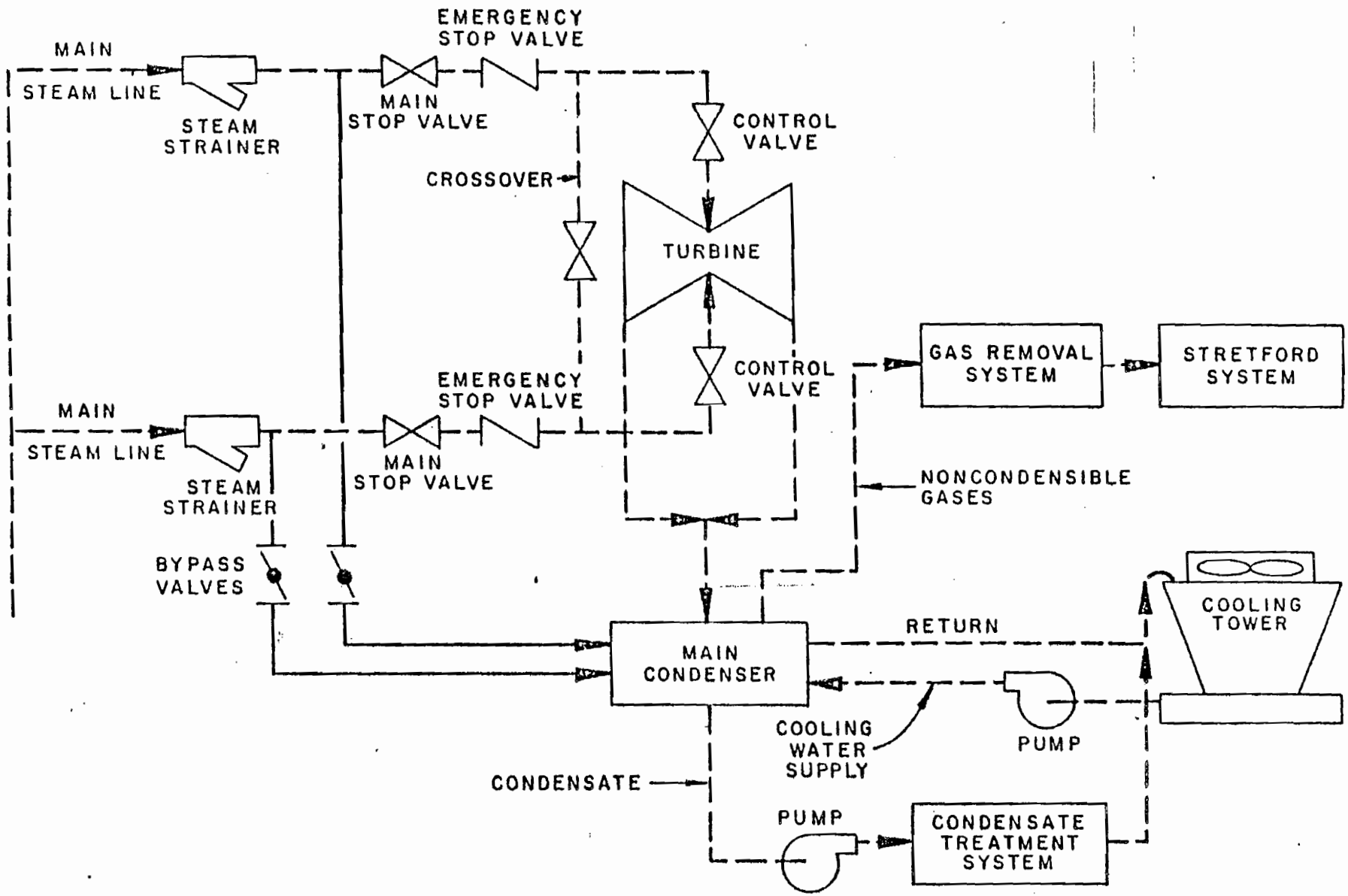
The diagram below describes the H_2S abatement facility. The EIC and/or other facilities utilized in the H_2S abatement systems almost completely remove entrained rock, dust and other particulate from the steam prior to emissions. The flow process is shown briefly below and in the figure that follows. The revisions to the AFC submitted by DWR in April 1980 provide the best description of the total system and its intended operation.



Shown in ( ) parentheses is the estimated level of unabated H_2S in the flow process for a 450 lbs H_2S/hr incoming steam rate. The actual amounts unabated during an upset and subsequent steam flow curtailment would be markedly less. The efficiency of the H_2O_2/Fe system is unknown for high H_2S levels which are likely to be encountered in the condensate. Additionally, the beneficial partitioning of H_2S into the non-condensables as a result of NH_3 removal in the EIC system and slight acidification is a reasonable expectation but has not been proven to be fact.

The generating facility and associated steam supply line will incorporate many attributes which serve to remove the necessity of considering stacking events simultaneous with other power plant outages. These include:

a) A diesel powered generator capable of operating the EIC system during power plant shutdowns;



TURBINE BYPASS SYSTEM

FLOW DIAGRAM

b) The ability to remotely and within minutes curtail steam supply to 35% or less;

c) A by-pass of the turbine to allow continued abatement and operation of the power plant during curtailed loads. The generator is to have a 5 megawatt load level which will allow self support of the plant in the event of a transmission line loss;

d) A 450 kw generator capable of sustaining circulation pump operation and emergency power needs; and

e) The ability for redundant major abatement components to significantly compensate in the case of failure of any single major component.

Conclusion:

As mentioned, the above capabilities will enable an analysis which does not address the combined impacts of venting large quantities of unabated steam, though this could conceivably occur during the initial start-up and during unforseen events. The problem with initial start-up is acknowledged and addressed in conditioning the DOC such that desirable meteorological conditions will be required to initiate start-up and be aborted if undesirable meteorological circumstances develop. The APCO's approval of start-ups resulting in more than 5 lbs H_2S/hr emissions will be required. This is expected to be necessary only when condensate bleeds are being utilized on the steamline (extremely rare occasions). The low emissions obtainable by EIC, Stretford and H_2O_2/Fe have been demonstrated as feasible as part of the DOE pilot EIC project and source tests of Geysers plants for Stretford and H_2O_2/Fe.

Environmental Setting

The purpose of this section is to describe the physical and social environment in the vicinity of the proposed DWR/Bottle Rock power plant. The proposed site is located just west of the Alder and Lee Creek drainages which empty into the Kelsey Creek drainage in Cobb Valley. There are several communities or residential concentrations in and around Cobb Valley that will be directly impacted by the proposed development. Among these are Glenbrook (Camp Beaverbrook), Pine Grove, Cobb, Hobergs, Adams Springs, Loch Lomond, and several subdivisions along Pine Ridge and the western flanks of Boggs Mountain. The make-up of these communities is well-rounded and consists of seasonal vacation (recreational), retirement, and other permanent (working) residences. All age groups are represented on a year-round basis with a trend toward the young and elderly during the late spring to early fall months when recreational usage increases significantly. Many small springs and streams contribute to the drainage of the region and the vegetation runs from near desert chaparral to heavy forest interspersed with meadows. The air quality is generally clear and clean but odor from H_2S and exceeds of the CAAQS for H_2S occur. However, it is the opinion of the LCAPCD that these exceeds are on the decline.

LCAPCD Rules Applicable to DWR Bottle Rock Power Plant

		Comments
Rule 411	Defines particulate emission.	Conformance expected; (see table, page 19), less than 40lbs/hr including plant outages.
Rule 412	Defines emissions from sulfur recovery units.	Conformance from Stretford and EIC Units expected.
Rule 421.2A&B	Establish general minimum performance standards for H_2S emissions from geothermal power plant operations.	Conformance expected and easily achieved.
Rule 430	Catch-all Nuisance provision.	Conformance is anticipated but cannot be determined prior to actual emissions impacting receptors and people.
Rule 439	Governs fuel storage parameters.	Conformance is expected and additional permit components for emergency diesel generator may be issued.
Rule 440	Defines new source performance standards (NSPS)	New source performance standards have not been promulgated for geothermal power plants.
Rule 450	Defines National Emissions Standards for Hazardous Air pollutants (NESHAP)	Conformance is difficult to ascertain since NESHAP standards have not been promulgated for geothermal power plants.
Rule 510	Defines emissions allowed under a malfunction condition.	Cooperation and conformance by DWR is expected, and as conditioned, should comply.
Rule 511	Defines operational time limits under malfunction condition.	"same as above"
Rule 520	Covers evasion.	"same as above"
Rule 530	Covers emission data and sampling access.	"same as above"
Rule 533	Covers Trade Secrets.	Conformance by the LCAPCD and DWR is expected.

Rule 600	Covers Authorities to Construct (A/C).	Conformance determined but complicated by CEC process.
Rule 602	Defining parameters for granting or denying A/C's.	Conformance expected if conditions suggested by the LCAPCD are implemented in the certification.
Rule 604	Provides option for requiring conformance with rule 602.	Option exercised.
Rule 605	New source Review. Requires analyses, consideration of public input, noticing, etc.	Conformance determined if AFC issued as LCAPCD conditioned and by separate agreement with the County of Lake.
Rule 606	Requires applicant to comply with all applicable local, state or national air pollution rules and regulations.	Conformance expected.
Rule 607	Requires ARB review and concurrence within 30 days.	Conformance expected.
Rule 610 thru 617	Covers the issuance of a permit to operate.	Conformance expected.
Rule 620	Covers the posting of permits.	Comformance expected.
Rule 650	Covers Source Emission testing.	Cooperation expected, and certification of suggested conditions will insure conformance.
Rule 661	Covers analysis fees.	Cooperation and conformance expected.
Rule 700	Covers emergency conditions.	Conformance and cooperation expected.

Steam Constituents of Concern
for
DWR/Bottle Rock Steam

A. H_2S Steam Content

The H_2S content of the steam reported in the Bottle Rock Steam Field EIR was 300ppm$_w$ (240±60 ppm$_w$). As part of the CEC proceedings several submitted source tests performed by LFE, Inc. for MCR on the Francisco leasehold wells were reviewed by the LCAPCD and it was determined the tests had been erroneously interpreted. Tests when properly interpreted showed an expected H_2S content of 600 ppm$_w$ (one tallied 80% confidence, 495±132). The LCAPCD position that original tests indicated a much greater H_2S content was acknowledged correct by DWR, MCRGC and LFE. Abatement equipment sizing and efficiencies are very dependent on this value and a conservative number must be used.

As part of an evaluation of bleeding wells and possible violation of rule 421.B, the LCAPCD requested that the State Air Resources Board tests wells in Lake County which were on a high sustained bleed and/or had steam of high H_2S content. The Coleman 1-5 and Francisco 1-5 were tested by the ARB using new and at that time not fully proven techniques during the middle of January 1980. A DOE source test team also tested Francisco 1-5 at the end of January 1980. These ARB, DOE and LCAPCD tests preliminarily indicate levels lower than previously reported values but also some values as high as earlier tests. PG&E Unit 17 which is geographically near the Francisco leasehold was sited assuming 450ppm$_w$ H_2S. The LCAPCD joined in an agreement with MCRGC and DWR to study Francisco and Coleman leasehold geothermal wells to ascertain H_2S under temporal variations. This study was completed and while a final report has not yet been prepared, the results indicate that the H_2S content of one well on the leasehold does not vary greatly over a period of a day, week or month, at least while on bleed. This was an unexpected result. Shown below is a summary of H_2S test results for the Bottle Rock steam field. It should be noted that samples were collected under different conditions of steam flow and that a great deal of time elapsed between various measurements.

	H_2S ppm$_w$	H_2S ppm$_w$ (Avg.)
Well #1	284±11[a], 362, 240, 220	283.3
Well #2	475, 340, 478, 336[b], 367[b]	399.2
Well #3	674, 481	577.5
Well #4	262, 224, 263, 159[b], 176[b], 125[b]	201.5
	equally weighted mean	365.4

a) Results of 42 tests while on bleed.
b) Source tests performed after the initiation of a cycling program to limit emissions of bleeding wells.

Conclusion: The measured H_2S value for the Bottle Rock steamfield wells indicate H_2S variability in steam occurs or that analytical measurement error has occured. The recent addition of a fourth well indicates

steam of a quality which is superior to previously completed wells, but even this well showed unexpected behavior in showing a higher H_2S content during flow tests than while on bleed. An estimate of the equally weighted mean for the four wells gives a value of 365. To assign an approximate deviation when it exists both between and within wells, over time, would be difficult and require a larger data base than presently exists. A value of 450 ppm_w H_2S or greater is suggested.

B. Components other than H_2S

The AFC and other submittals address components other than H_2S. Specific source tests are included in the DWR AFC. Two additional tests have also been incorporated in the table below. It should be noted that these results are also subject to variations and it is difficult to sample and analyze for the components in question. The information is provided to enable an awareness, but an extreme confidence as to the accuracy of each component does not exist.

Steam Content of Bottle Rock Steam
(Other than H_2S)

Unit	Component	Well #1	Well #2	Well #3	Well #4
ppm_w	NH_3 (range)	56-90	130-140	33-90	35-90
pci/kg x10^3	Radon	9.6 12.0 11.0	28.8	36,25	——
ppm_w	Boron	0.5*,14	31,30		29
ppm_w	Silica	5.3,41	0.68,0.57	0.055 0.11	<0.02
ppb_w	Fluoride	45, 60	< 100	440, 445	140
ppb_w	Arsenic	<10			<100
ppb_w	Mercury	19	4,8	25, 8.8	< 30

A variety of techniques have been utilized in the measurement of the above components from the subject wells. Additionally, benzene has been measured in noncondensable gas of one well at 10-30 ppm_v and the concentration in the condensate, though not measured, could be significant. Mercury exists in both the dissolved and vapor phase within the noncondensables and condensed steam.

Particulate & Minor Pollutants Emissions

Particulate emissions result from dissolved components and small suspended particulate in the cooling water being suspended into the air which is mechanically drawn through the cooling tower. The dissolved solids are concentrated by the evaporation process within the cooling tower water and further concentrated by the entrainment process.

This concentration factor over that of incoming steam is difficult to estimate. A concentration factor of 5 occurs within the cooling tower (80% evaporation). Further evaporation and concentration of the particulate occurs while the droplet is suspended within the cooling tower and prior to exiting. This phenomena is enhanced by the preferential exiting of small particles (they escape the drift eliminators). An enhancement factor of 5 is assumed for this parameter. DWR/Bottle Rock is to be equipped with an EIC system which will reduce the levels of boron, arsenic, particulate, etc., and perhaps cause the level of suspended sulfur to increase. If significant quantities of H_2S must be abated in the condensate, dissolved solids would also be expected to increase markedly.

Provided below is a summary of maximum expected quantities of pollutants of concern entering the plant and expected maximum emissions. It should be noted that the high reported value for each component is utilized.

	lbs/hr to Plant	Removal Efficiency	Maximum Expected Emissions Rate
Boron[a]	30	50%	0.26 lbs/hr
Fluoride[a]	0.445	0%	0.008 lbs/hr
Arsenic[a]	0.1	50%	0.001 lbs/hr
Silica[a]	41	90%	0.070 lbs/hr
TDS	150	0	2.5 lbs/hr
NH_3[a]	140	~99%	<1 lb/hr
Hg[b]	0.02	unknown	<0.02 lbs/hr
Radon[c]	36,000 pci/kg	0%	3.6 millicuries/hr
H_2S	450	—	5 lbs/hr

[a]Components are assumed to concentrate by a factor of 25. A drift rate of 0.002% and a circulating water rate of 34×10^6 lbs/hr were utilized.

[b]Hg is volatile in the steam. Its eventual fate is uncertain.

[c]Radon is inert and passes through the system.

Conclusion: Even with extremely conservative assumptions the particulates emissions limitations can be met. The emissions of various holding tanks, the sulfur (Stretford) handling system, etc., have been conservatively estimated in the AFC and subsequently submitted materials and need not be recalculated here. A proposed steam sampling and ambient monitoring program should give a better understanding of potential non criteria pollutant significance.

Historical Air Quality and Studies

A review has been completed of the Environmental Impact Report (EIR) for the Department of Water Resources (DWR) Bottle Rock power plant dated December 1979 and reissued August 1980 by the California Energy Commission; the Notice of Intent and Application for Certification (AFC) submitted by DWR and subsequently submitted material; modeling analyses by the ARB, SAI and an MCR consultant of tracer tests and plume rise calculations; SMUD and PG&E geothermal power plant AFCs; and other relevant environmental documents. Also reviewed were numerous tracer tests conducted on or near the leasehold since 1976.

During the last three years the LCAPCD has obtained considerable air monitoring data on the leasehold, at the old SIR sites (1, 3, 4, 5, and 7), and at short-term nearby monitoring sites. As late as July 1980 violations of the CAAQS for H_2S of .03 ppm were noted within the potential impact area of the development.

DWR funded a site-(power plant)-specific H_2S air quality monitoring program which started in September 1978. For the year September 1, 1978 to August 31, 1979, data capture was 63%, 31 hours with exceeds ($H_2S \geq 26$ ppb) or approximately 10% of the days. The highest one-hour value recorded was 79 ppb which is two and two-thirds the State H_2S air quality standard. This H_2S data compares favorably with the 1976, 1977 and 1978 H_2S data (see Attachment A-2, A-3, and A-4) collected in Cobb Valley by SRI at Kahm Ranch and Pine Ridge. Though the Bottle Rock site monitoring station was likely impacted to an extent by localized field development activities, information to prove such is lacking.

Tracer results are still the most useful potential impact evaluation tool that air regulatory agencies can utilize. Results are generally accepted as the best possible information on which to base decisions. Air dispersion models are commonly validated using the results of tracer tests and to validate the use of the model to further extrapolate to other scenarios of concern.

Much discussion has resulted from an MRI Cobb Valley tracer study designed and funded by PG&E, Union, NCPA, DWR and MCRCC, to aid in the permitting of the proposed Cobb Valley development. Results of one tracer test under a "subsidence inversion" condition (Test #5) indicated a very severe impact for H_2S emissions into Pine Grove from the proposed Bottle Rock power plant. In fact, worse case scenario estimated H_2S impacts are great enough to cause alarm over potential health impacts.

Relevant tracer studies to evaluate bleeding wells were also performed in which gaseous tracer was injected directly into the steam of venting wells or released at an elevated point for several meteorological conditions. The results of these tests and tests designed for the power plant are presented in summary form in Table I. Tests of drainage conditions to ascertain impacts of venting wells from the Francisco pad show impacts of the same order as the subsidence Test #5; however, such impacts were closer in and away from population centers and are not believed to be representative of cooling tower plumes.

Review of Tracer Tests Performed

Of the number of tracer tests utilizing SF_6 and CF_3Br performed on or near the DWR proposed site, (MRI-79-DV-1670) Tracer Test #5 has received the most heated discussion. The impacts realized were high but have also been similarly observed during other tracer tests under somewhat dissimilar conditions. The relevance of applying such tests (i.e., 200 ft. releases) may be argued but the caution cannot be ignored. In general, the validity of other tracer tests have not been challenged and are assumed, after limited review, to be valid. In fact, they may very well represent less than worse possible impacts.

Test #5 was performed using a tethered balloon to suspend a ¼ inch hose to a height of approximately 500 feet (variations would be caused by wind changes) and release of $CBrF_3$ through this hose. Considerable argument has been forwarded by many parties as to the appropriateness or validity of the test for a variety of reasons. Significant modeling and analysis efforts of Test #5 have been performed by Teshi (SAI), Ranzieri (ARB), Goddard (Environmental and Agricultural Consultant for MCRCC), and Sueder (ARB). In addition, the CEC, ARB (Meteorology and Power Plant Siting Sections), MRI, ES&S, DWR and LCAPCD have also reviewed and commented on several occasions on different aspects of the test. However, this is not the only meteorological scenario of concern. The MRI meteorologist (by far the most experienced in KGRA studies) does not agree with speculative high plume rise estimates but has stated that a plume rise of 750 feet is within reason (see Figure I-1). Upon examination, Figure I-1 will disclose the sinking subsidence inversion and the rationale behind correcting to a conservative 750 ft release height but will not completely delete the appropriateness of utilizing the 500 ft release as accomplished. It should be noted that an apparent ground layer inversion or drainage co-existed with the subsidence inversion, especially during late afternoon. The LCAPCD believes the matter

will be subject to continued argument until a great deal more is known about complex terrain air dispersion and steam/cooling tower plumes.

From the above-mentioned efforts, the following can be concluded:

1) The analytical measurement techniques utilized during the tests are valid.

2) Most opportunities for errors during the performance of tracer tests such as Test #5 will give markedly lower values, not the high values noted. The contractor logs and procedures were reviewed by Dr. Sueder of the ARB who concluded the tests were performed using good professional practices (written communication).

3) There are inconsistencies in the reported met data between the tracer summary and data volumes of the MRI reports. This is not true for the chemical/analytical data which is of most concern in evaluating the validity of impacts. Limited met data was erroneously reported during the computer reduction. This error has been acknowledged by ES&S and the analysis was completed without further corrections.

4) All parties agree that the proper release height for a power plant can be appropriately and perhaps conservatively assumed to be 750 ft or higher, not the 500 ft utilized. Considerable concern existed and still does as to whether the 500 ft release height used should be corrected for purposes of evaluating stacking emissions. This concern has been alleviated by DWR/MCR incorporating a turbine by-pass into the power plant design which will send those emissions associated with stacking to the power plant abatement and dispersion process via the cooling tower.

5) While many investigators concluded that a release height even greater than 750 ft is appropriate for Test #5 (power plant), consideration

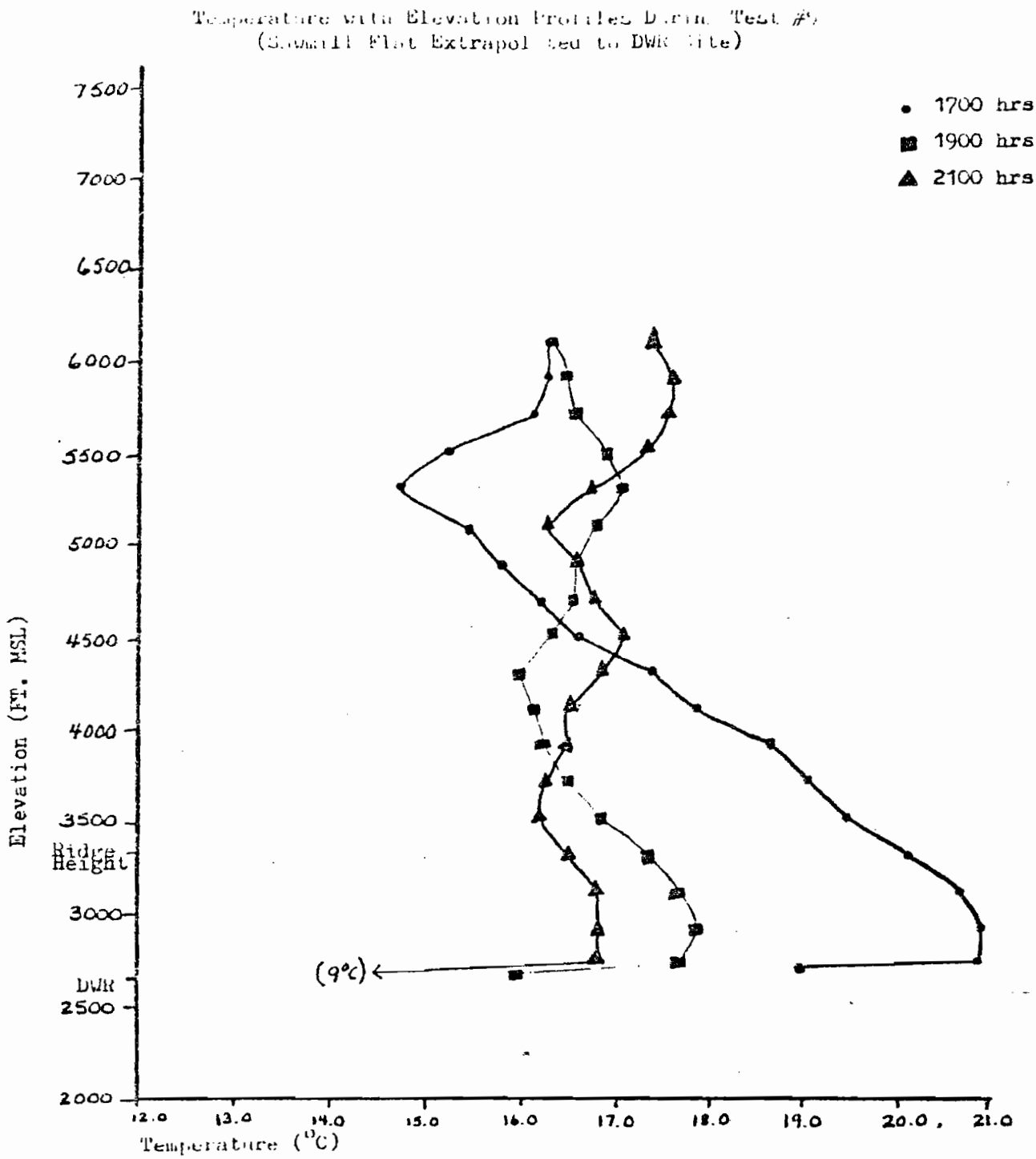

Temperature with Elevation Profiles During Test #9
(Sawmill Flat Extrapolated to DWR Site)
1700 hrs
1900 hrs
2100 hrs
7500
7000
6500
6000
5500
5000
4500
4000
3500
Ridge Height
3000
DWR
2500
2000
Elevation (Ft. MSL)
(9°C)
12.0
13.0
14.0
15.0
16.0
17.0
18.0
19.0
20.0
21.0
Temperature (°C)

Figure I-1

was not given to stronger subsidence, local or large thermal driven, non-horizontal winds, stronger temperature gradients, etc.

The above discussion leads to the conclusion that a very conservative assumed plume height of approximately 750 ft could be used to correct the referenced test and compared to the impacts expected from a very uniquely re-designed DWR/MCR geothermal energy production facility.

Three approaches as suggested by Teshi, Ranzieri and Goddard were considered as most appropriate by the LCAPCO. Each involves ratio-ing the reported values to a lower impact assuming a higher release height would result in an increased dispersion of emissions. The results of these three suggested approaches are provided in Table II below.

Table II

Correction of Test #5 from 500 ft to Assumed 750 ft Release*

	Correction Factor	Predicted 5 lb/hr H_2S Emissions Impact
SAI-Hybrid Model	0.297	6.1 ppb
ARB SMOG Model	0.586	12.2 ppb
Goddard & Goddard	0.456	9.5 ppb
		mean = 9.3 ppb

*It should be noted that the SAI and ARB models and Goddard & Goddard suggested methodology yield predicted values significantly below those reported if unaltered model outputs are taken or a less conservative plume rise is assumed. In fact, predicted levels are less than 5 ppb total impact.

Notes on Table II

A. Teshi's suggested approach (Relative Impact)

Assumptions: Assumptions used in the SAI model are documented in the attached appendix and include the 750 ft plume rise and that a sinking subsidence (or possibly other momentum effects) as a reason to use elevated grid cell values. The model output is then used in a simple manner to derive a ratio which is applied to the tracer results.

1. Ratio of predicted to actual values for a 500 ft model and tracer test are 0.31 (1 cell away) and 0.34 (2 cells away).
2. Correction factor

$$C_f = \frac{\text{predicted 750 ft impact}}{\text{predicted 500 ft impact}} = \frac{2.075/5}{1.398} = 0.297$$

3. Corrected Test #5 impact - (4.161)(0.297) = 1.23 ppb/1.0 lb H_2S.
4. Impact of 5 lb/hr H_2S = 6.1 ppb.

B. ARB's suggested approach (Relative Impact)

The ARB/s smog model was used to attempt to emulate Test #5. Predicted impacts are off by an order of magnitude, but the ratios of predicted impacts can be utilized to derive a relative impact.

1. Ratio of predicted to actual impact under Test #5 conditions are poor.
2. Correction factor derived using worst 500 ft and 750 ft plume rise impacts plus or minus one grid cell from observed peak

$$C_f = \frac{1.7}{2.9} = 0.586$$

3. Corrected Test #5 impact = (4.161)(0.586) ppb/1.0 lb H_2S = 2.44 ppb/lb H_2S.
4. Impact 5 lb/hr H_2S = 12.2 ppb.

C. Recalculation using approach similar to that suggested by Goddard & Goddard for a 750 ft (229 m) assumed plume rise.

1. Derived equation

Pine Grove = expected ground level concentration equivalence

$$= 7.676\ e^{-\frac{1}{2}\left(\frac{H}{137}\right)^2}\ \text{ppb } H_2S/\text{lb emitted}$$

$$= 7.676\ e^{-\frac{1}{2}\left(\frac{229}{137}\right)^2}\ \text{ppb } H_2S/\text{lb emitted}$$

$$= 1.90\ \text{ppb } H_2S/1.0\ \text{lb } H_2S\ \text{emitted.}$$

2. Correction factor: $\frac{1.9}{4.161} = 0.456.$

3. Impact of 5 lbs/hr H_2S = 9.5 ppb.

LCAPCD Selected Worse Case

Evaluation of the discussion of impacts contained in the previous sections leads to the conclusion that while MRI Test #5 produced the highest singular impact value, other scenarios (such as drainage) will likely also produce equally serious impacts. The cross ridge transport mechanism has shown, through aircraft H_2S monitoring and spot sampling, to have potential for heavy impacts of H_2S and contributions to exceeds of the CAAQS. This is vividly illustrated by Knuth in his discussion of Test #5 (and others) in the MRI 79 DV 1670 document. Thus, while Test #5 is considered the "worst singular impact," the other scenarios, when combined with existing background, are also of major concern.

In the final analysis, DWR/Bottle Rock is estimated to contribute less than 5 ppb concurrent to an exceed, although during subsidence inversions the contribution is estimated at slightly less than 10 ppb concurrent with a 15 ppb background. Since the contribution is less than 5 ppb to an exceed, the facility can be permitted under rule 602. Future background H_2S levels, the contribution of DWR/Bottle Rock, and methods of estimation are provided in the sections that follow.

Subsidence Inversions (Limited Vertical Mixing)

Examination of data concerning the worst case subsidence inversion impact for the DWR project revealed ten (10) tracer test days with suspected subsidence inversions (Table I-1). Data for these ten tracer tests are contained in MRI Data Volumes MRI 78 FR 1539 and MRI 79 DV 1670. H_2S data depicted in Table I-1 is contained in the monthly SRI reports for the dates noted. These values are the maximum hourly values recorded within ±5 hours of tracer release periods.

While days with subsidence inversions occur with regularity in the area of concern, those days listed in Table I-1 are the only days for which upper air data (temperature soundings) exist and are available to the District to quantify characteristics of the scenario in question. The co-existing background (H_2S) level for each monitoring site is reported for each of the tests indicated. It is not so easy to establish that these days are indeed the worse historic days coincident with subsidence inversions.

Because of the above discussion, subsidence (limited vertical mixing) has been chosen as one of the worst case conditions. After an analysis of the thirty-five (35) tracer tests contained in the above-mentioned MRI data volumes, this becomes even more apparent. The level of predicted impact obtained from Test #5 (September 27, 1978) re-emphasizes the validity of this consideration.

While many tests have been designed and accomplished in the area of interest, only three were specifically designed with subsidence in mind (Tests 5, 8, and 9 accomplished in 1978). It is noteworthy, however, that many of the 35 tests accomplished were accompanied by subsidence or suspected subsidence inversions. Of these, only Test #5 (MRI 79 DV 1670) demonstrated a rapid descending motion (see Figure I-1) and produced unexpected high impacts.

The sinking subsidence inversion observed during that test qualified as a weak inversion according to Holzworth, as suggested by Tesche (1979) (see

Table I-1

		Holzworth Classification	Remarks	INV top	Maximum H_2S ±5 hrs or day SRI# (w/o Rollback)				SRI# (w/Rollback			
					3	4	5	7	3	4	5	7
Oct 9-10, 1977 22-04 psi	3	Strong	w/sfc inv	3100 ft	5	5	10	10	3	3	5	5
Oct 11, 1977 21-02 p	4	V Strong	w/sfc inv	3400 ft	10	10	15	5	5	5	8	3
Oct 12-13, 1977 00-05 p	5	V Strong	w/sfc inv	3800 ft	10	10	10	5	5	5	5	3
Nov 1, 1977 00-04 p	8	Moderate Moderate		3800 ft 5200 ft	15	10	0	5	8	5	0	3
Nov 2, 1977 00-05 p	9	Moderate		5200 ft	10	0	0	5	5	0	0	3
Nov 9, 1977 00-05 p	10	Strong		5400 ft	10	0	0	5	5	0	0	3
Dec 9, 1977 00-05 p	14	Strong Moderate		4000 ft 5000-5600	5	5	10	5	3	3	5	3
Sep 27, 1978 13-1800	5	Weak		3700-5300	5	5	15	5	3	3	8	3
Oct 20, 1978 13-1800 p	8	Moderate		5300 ft	10	15	20	10	5	8	10	5
Oct 25, 1978 15-2100 p	9	Moderate		3800-4400	10	30	15	25	5	15	8	13

Table I-2). It is interesting to note that the remainder of the inversions listed in Table I-1 qualify as moderate or stronger under the Holzworth scheme. During these tests the strength of the inversion shows little relation to the value of background H_2S recorded but rather indicates that the inversion height (base and top) must be above the ridge (Mayacmas) level for the higher values of H_2S to be recorded in Lake County. Many of these "subsidence" inversions were also accompanied by "surface based" or "valley" inversions which further indicates the probability of a narrow layering of pollutants and may account for the low or high levels of H_2S recorded. Additionally, such layering when coupled with drainage winds or late afternoon thermally-driven winds may result in a complex transport mechanism to populated areas which makes it impossible to model the resulting dispersion.

The values listed in Table I-1 yield background values as high as 30 ppb and if rollback is applied, these levels will fall to 15 ppb. This combined with a projected emissions level/impact of 5 lbs/hr of approximately 10 ppb (corrected Test #5) will produce a combined impact of 25 ppb.

In summary, it may be said that while subsidence produced the highest singular impact, other regimes such as drainage may be expected to produce results nearly as high. The subsidence and accompanying limited mixing will affect populated areas with significant levels (Test #5 $\sim$10 ppb), however, as evidenced by Table I-1, the 1978 existing background levels included a 30 ppb exceed and by 1984, this value should be significantly reduced to approximately 15 ppb. This assumption is based on increased awareness of the developers in applying abatement techniques during drilling, etc., and thus insuring the successful application of rollback.

Table I-2

Holzworth Catagories for
Classifying Atmospheric Stability

Class	$\Delta T/\Delta Z$ (°C/100m)	Stability Category
1	< -1.60	Very superadiabatic
2	-1.21 to -1.60	Superadiabatic
3	-0.81 to -1.20	Near dry adiabatic
4	-0.41 to -0.80	Near standard atmosphere
5	0.00 to -0.40	Weak lapse
6	0.00 to 0.47	Weak inversion
7	+0.48 to +1.14	Moderate inversion
8	+1.15 to +2.82	Strong inversion
9	+2.83 to +6.00	Very strong inversion
10	> 6.00	Extreme inversion

Drainage

Of the previously mentioned MRI tracer tests (35), seven (7) were designed to test drainage from the DWR site or nearby Francisco wells. Release heights for these tests varied from 30 feet above ground level (AGL) to 800 feet AGL. For the purposes of this discussion only the four (4) tests listed in Table I are considered and these produced the heaviest impacts. Specifically, these are tests 4 and 5 of the 1977 series and tests 3 and 18 of the 1978 series. As Table I shows, the worst impact for the drainage tests (or other tests) was recorded during Test #5 of the 1977 series. This impact was 4.511 ppb per pound H_2S emitted and occurred .75 mile east of the Francisco wells near several residences. For this particular test tracer material was injected into a venting steam well (Francisco) and the release height was conservatively estimated at 100 ft AGL which in all likelihood is low for cooling tower emissions but realistic for a steam stacking scenario. Test 18 was accomplished utilizing dual tracer gases (Sf_6 and $CBrF_3$) released at 800 ft AGL and 400 ft AGL respectively. Of interest in this test is the fact that the higher release height (800 ft AGL) tabulated impact values (worst) of approximately three (3) times the lower release heights (400 ft AGL) and both heights impacted the same receptor site with highest values. These values were .967 ppb per lb H_2S emitted for the 800 ft release and .326 ppb per lb H_2S emitted for the 400 ft release height and were recorded at the Francisco well site which is only slightly west of the residence listed in the "nearby impacts" section of this determination.

An analysis of the thirty-one (31) hours of violations which occurred during the DWR site monitoring was accomplished to ascertain the relationship between the violations and drainage or subsidence conditions. Parameters included the time of day a violation occurred (i.e., nighttime hours), and whether coinciding winds were favorable to drainage (i.e., downslope and/or light speeds) at that

time. The results are tabulated below.

Drainage	Occurrences by Time	%	Occurrences by Winds	%	Peak H_2S ppb
Favorable	19	61.2	22	70.9	79
Borderline	6	19.4	3	9.7	60
Unfavorable	6	19.4	6	19.4	29

Of interest is the high percentage of time that both the time and winds were favorable (61.2 - 70.9%) or potentially favorable (80.6%) to drainage conditions and that the peak H_2S values were recorded under these conditions. In addition, six (6) hours of H_2S values of 25 ppb were recorded and all six were favorable by time of day and four of the six were favorable or borderline for winds. This tends to support the observation that drainage will coincide with higher levels of H_2S and possible H_2S AAQS exceeds.

Conclusion: A high expected incidence (80%) of occurrence of drainage conditions coincident with H_2S AAQS exceeds, and impact levels approaching 5 ppb for 5 lbs/hr H_2S emissions from tracer test #18 leads to the conclusion that drainage may be the worst case condition coincident with AAQS exceeds and as such, the LCAPCD must require Best Available Control Technology.

Impingement or Direct Cross Ridge Transport (SRI 4 Episodal)

This condition (scenario) occurs when emissions from sources in Sonoma County are transported across the top of the Mayacmas Mountain to the north of Cobb Mountain and impact into Pine Ridge and/or the western portion of Boggs Mountain. Mixing can be restricted by multiple inversion layers. Winds for such conditions are usually of lower speed (less than downwash). As such, emissions from the DWR project may become entrapped in these layers and add to the existing pollutants which eventually will impinge upon the ridges to the north and east of Cobb Valley. Four tracer tests were accomplished to ascertain and assist in quantifying impacts from such a scenario. These were MRI tests 4, 6, 9, and 10 contained in MRI 79 DV 1670. Tests 4 and 6 were accomplished from the proposed PG&E Unit #17 and NCPA #1 sites while tests 9 and 10 were from the Unit #17 and DWR sites. All release heights were 500 ft AGL. The two releases from the DWR site produced worst impacts along the ridge of .301 and .311 ppb per lb H_2S emitted and the two releases from the Unit #17 site produced similar impacts (.115 - .200); however, the Unit #17 test #6 produced down ridge impacts on the order of .597 (SRI #3) to .703 ppb per lb H_2S emitted (Pine Grove).

Investigation and examination of the tracer data discloses that tests 6, 9, and 10 were accomplished under conditions favorable to cross ridge transport. Test #6 also appears to have had a fumigation effect into the Cobb Valley, re-emphasizing the complexity of performing such tests.

With an emission of five (5) pounds per hour and using Test #9 results, the expected impact would be 1.5 ppb along the opposite ridge. Airborne sampling indicated a higher value of ~5 ppb might also be probable during Test #9. During Test #10 one grab sample indicated 1.976 ppb/lb (~10 ppb) impact near Adams Springs. Grab samples have not been utilized in the past for permit decisions and will not be used in this case; however, such results obviously

point to the necessity to consider impingement of DWR Bottle Rock a major concern.

Conclusion: Cross ridge transport is and should be of concern. Impacts from DWR as ascertained from tracer tests can be expected to be less than 5 ppb on an hourly basis, however short-term levels may be much higher.

Expected Future Worse Case H_2S Levels as a Result of DWR/Bottle Rocks Operation

To anticipate future levels of H_2S the historic emissions data base for selected worse case days must be established and adjusted for the level of abatement expected to be achieved at that future date when a proposed source will become operative. This is not simple unless a direct relationship is assumed. Also, the affects of new development at the receptor area must be evaluated. This task is also extremely difficult unless simplifying assumptions are made.

Considerable uncertainty of emissions inventories results from: (1) uncertainty of abatement efficiency, especially for PG&E's intermittent power plant abatement program; (2) steam variability from selection of supply and at the well; (3) generating load of the plant and/or mode of operation; and (4) abnormal malfunctions or unrecognized sources.

Provided in the table below are selected worse case days for subsidence and drainage and in Table E-1 baseline and future emissions inventories are estimated. This is used with the tracer results and a simple rollback to establish the future worse case levels. These results are also provided after correction for 1984 emissions in the table below.

Exceeds of the H_2S AAQS at the time DWR/Bottle Rock is to become operative are expected, and DWR/Bottle Rock will contribute to these exceeds. The LCAPCD does not accept the argument that modeling can accurately define impacts but does believe that test #5 results can be corrected as indicated to establish the likely impact under subsidence inversions.

Historic H_2S levels of 79 ppb occurring during drainage conditions even with optimistic assumptions for improved abatement will result in expected levels greater than 30 ppb, and when emissions and impacts of new nearby Units are factored in will result in a worse situation. This analyses ignores the

consideration that PG&E Unit #17 may contribute a disproportionate new burden to the Cobb Valley area.

The two worse cases subsidence and drainage can be summarized as follows:

Worse Cases	SRI #4 1978 max	1984 max with rollback	+	DWR 1984 Contribution
Subsidence				
Oct. 25, 1978 15-2100	30 ppb	15 ppb		<10 ppb
Drainage	Bottle Rock PP 1979 max	1984 max with rollback		DWR 1984 Contribution
Aug. 8, 1978 0400	79 ppb	39 ppb		<5 ppb

Conclusion: During subsidence inversions the proposed 5 pounds H_2S/hour emissions limitation would result in ~10 ppb impacts but such impacts are unlikely to cause or contribute to an exceed of the H_2S AAQS.

During strong drainage conditions the emissions for DWR/Bottle Rock will contribute to the continued violation of the H_2S AAQS but in an amount less than 5 ppb as indicated by tracer test #18. It should also be noted that this conclusion assumes H_2S values and tracer test results noted on the leasehold are representative of nearby populated areas.

Abnormal Emission

With the power plant and steam delivery system proposed, abnormal emissions should, except on extremely rare occasions, be nearly non-existent. This is due to the operation of the air emissions control system during power plant outages. This system will reduce the emissions levels of arsenic, boron, ammonia, etc., in addition to H_2S, and limit the frequency of cold start-ups of the power plant due to pipeline maintenance, long-term outages, and possible simultaneous failure of the abatement system. Infrequently the power plant will have to undergo cold start-up and in the process will of necessity have to bleed condensate lines and operate for a short period unabated. In this instance the venting of concentrated gases (Radon^{222}, H_2S, etc.) for short durations may occur but will be routed to the cooling tower in every possible instance. The impact of emissions in a highly concentrated form without dilution is not known but is of concern. During unabated stacking all gases and the majority of the particulate emissions will be emitted directly into the air. However, as stated, the vast majority of periods of steam stacking will utilize the turbine by-pass and EIC abatement system singularly or together and emissions will not change significantly from normal operations.

Nearby Impacts

The owner and part-time resident of a single family home shown as residence "A" on Figure A-1 located in close proximity to the Francisco leasehold has filed with LCAPCD complaints which include concern for health and air quality believed degraded by drilling activities on the leasehold. The resident has also made similar statements publicly and does not appear to have excellent health. The owner and part-time resident of residence "B", however, has not filed complaints although acknowledges that odors do occur on occasion. Other residents on High Valley Road, while complaining on occasion, have not asked for special consideration.

The LCAPCD shall condition the AFC permit to ensure that should complaints over odor and health increase at residence A during the operation of the Bottle Rock power plant, a study to establish the certainty of the source of impacts will be coordinated with the LCAPCD, and funding assistance will be provided by the applicant to accomplish such studies and ensure that appropriate mitigation is taken.

Locations off the MCR leasehold but near the project, and several vacation residences located on private property on High Valley Road (a private road) will, under worse case conditions, be impacted by the project emissions in an amount likely to be greater than 5 ppb H_2S simultaneous with likely exceeds of the 0.03 ppm H_2S standard. These residences, with the exception of residence A, are not full-time residences, a place where the public would generally be expected to be, a sensitive receptor, or a population center. As such, the limitations of rule 602 have not been applied at these sites. Residence A, which is considered by the LCAPCD to be a sensitive receptor, has been given special consideration.

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TABL

Test #	Date	Release Height	Highest Grab	Location	Highest 1 hr Sample per pd H_2S	Location	Impact of Emissions per Hour			
							60 lbs	13 lbs	5 lbs	2.5 lbs**
1	10/11/77	100'AGL*	.979ppb	1 mile N Release	2.335ppb	.75 E Release	140ppb	30.4ppb	11.7ppb	5.6ppb
					.995 "	Jadiker's Gate	60 "	12.9 "	5.0 "	2.5 "
	(Drainage)				1.725 "	Glenbrook	104 "	22.4 "	8.6 "	4.3 "
					1.212 "	Adams Ranch	73 "	15.8 "	6.1 "	3.0 "
	*Tracer injected into steam				.951 "	Nunnemakers	57.1 "	12.4 "	4.8 "	2.4 "
2	10/13/77	100'AGL*	4.068 ppb	.5 mile E Release	1.982ppb	Jadiker's Gate	119ppb	25.8ppb	9.9ppb	5.0ppb
					1.696 "	Glenbrook	102 "	22.1 "	8.5 "	4.3 "
	(Drainage)				2.337 "	1 mi. NW Release	140 "	30.4 "	11.7 "	5.8 "
					4.511 "	.75 mi. E Release	270"	58.6 "	22.6 "	11.3 "
	*Tracer injected into steam				.733 "	Adams Ranch	44 "	9.5 "	3.7"	1.8"
3	9/22/78	200'AGL	.882ppb	Jadiker's Gate	.381ppb	Upper DWR	22.9ppb	5.0ppb	1.9ppb	1.0ppb
					.194 "	Jadiker's Gate	11.6 "	2.5 "	1.0 "	0.5 "
	(Drainage)				.626 "	Sawmill	37.6 "	8.1 "	3.1 "	1.6 "
					.217 "	Adams Peak	13.0 "	2.8 "	1.1 "	0.5 "
					.148 "	4 mi. N Release	8.9 "	1.9 "	0.7 "	0.4 "
					.838 "	Nunnemakers	50.3 "	10.9 "	4.2 "	2.1 "
					.640 "	Lee Creek	38.4 "	8.3 "	3.2 "	1.6 "
					.194 "	Binkley Ranch	11.6 "	2.5 "	1.0 "	0.5 "
					.307 "	Windrem Ranch	18.4 "	4.0 "	1.5 "	0.8 "
					.299 "	Sweetwater Ranch	17.9 "	3.9 "	1.5 "	0.8 "
4	9/23/78	500'AGL	N/A		.115ppb	Adams Peak	6.9 "	1.5 "	0.6 "	—
5	9/27/78	500'AGL	N/A		1.907ppb	Sawmill	114.4ppb/ 51.0ppb	24.8ppb/ 11.0ppb	9.5ppb/ 4.3ppb	—
	(Subsidence Inversion) (Uncorrected/ Corrected)				4.161 "	Pine Grove	249.7 "/ 111.6 "	54.1 "/ 24.2 "	20.8 "/ 9.3 "	—

Test	Date	Release Height	Height Grab	Location	Highest 1 hr Sample per pd H_2S	Location	Impact of Emissions per Hour: 60 lbs	13 lbs	5 lbs	2.5 lbs**
6	9/30/78	500'AGL[1]	—	—	.768ppb	Upper DWR	46.1ppb	10.0ppb	3.8ppb	—
		500'AGL[2]	—	—	.597 "	SRI #3	35.8 "	7.9 "	3.0 "	—
	(SRI 4 episodal)				1.329 "	Jadiker's Gate	79.7 "	17.3 "	6.7 "	—
	1- PG&E Unit 17 Release				.703 "	Pine Grove	42.2 "	9.1 "	3.5 "	—
	2- NCPA Release				.603 "	Lee Creek	37.8 "	8.2 "	3.2 "	—
9	10/25/78	500'AGL	.909ppb	Acft Sample	.311ppb	Central (SRI4)	18.7ppb	4.0ppb	1.6ppb	—
	(Subsidence Inv/SRI 4 episodal)									
10	10/27/78	500'AGL	1.976	Adams Springs	.301ppb	Hobergs	18.1ppb	3.9ppb	1.5ppb	—
	(SRI 4 episodal)									
13	4/1/79	600'AGL	—	—	.967ppb	Francisco Well	58.0ppb	12.4ppb	4.8ppb	2.4ppb
	(Drainage)				.326 "	Francisco Well	19.6 "	4.2 "	1.6 "	0.8 "

**Downwind impacts only.

Table 13

DISTRIBUTION OF H_2S HOURLY AVERAGES (30 ppb) 1976

Station		Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Percent
1 Geyser Rock	≥30[a]	8	45	22	24	49	99	57	103	45	9	27	488	7
	Days[b]	5	17	12	13	17	27	18	26	12	4	9	160	49
	Counts[c]	447	714	699	662	708	696	602	684	727	695	691	7425	91
2 Anderson Ridge	≥30[a]	51	82	22	41	79	112	91	68	56	26	10	640	10
	Days[b]	12	19	10	14	16	20	20	19	14	11	5	160	49
	Counts[c]	399	718	691	330	675	715	646	663	729	598	496	6660	83
3 Kahn Ranch	≥30[a]	1	5	0	1	4	7	0	13	7	1	1	40	5
	Days[b]	1	4	0	1	2	3	0	4	2	1	1	19	6
	Counts[c]	474	713	672	644	712	725	715	661	737	599	691	7338	91
4 Pine Summit	≥30[a]	5	4	0	1	2	6	0	7	10	3	1	39	5
	Days[b]	2	4	0	1	2	4	0	4	5	2	1	25	8
	Counts[c]	347	710	707	651	702	713	720	594	721	641	662	7168	89
5 Whispering Pine	≥30[a]	0	0	0	1	0	14	3	4	9	0	2	33	5
	Days[b]	0	0	0	1	0	5	3	3	5	0	2	19	6
	Counts[c]	411	734	676	668	627	633	722	644	715	588	647	7065	88
6 Anderson Springs	≥30[a]	0	0	0	0	2	1	0	0	0	0	0	3	04
	Days[b]	0	0	0	0	2	1	0	0	0	0	0	3	9
	Counts[c]	437	724	705	655	651	697	717	594	700	628	647	7155	89
7 Sawmill Flats	≥30[a]	0	0	1	4	9	8	4	7	0	0	0	33	5
	Days[b]	0	0	1	3	5	3	3	2	0	0	0	17	5
	Counts[c]	594	726	690	667	492	676	710	642	730	579	102	6608	82
8 Aullin Ranch	≥30[a]	25	0	0	3	5	1	12	2	17	37	84	186	3
	Days[b]	8	0	0	2	2	1	2	2	4	8	17	46	14
	Counts[c]	295	171	699	648	688	624	714	678	622	536	658	6333	79
Monthly totals	≥30	92	136	45	75	150	248	167	204	144	76	125	(All stations)	
	≥30	31	9	1	10	22	37	19	33	43	41	88	(Stations 3-8)	

a ≥30 ppb = number of H_2S hourly averages at or above 30 ppb.

b Days = number of days with at least one hour reading at or above 30 ppb.

c Counts = number of valid hourly averages (percent counts correspond to valid data capture for 1 February through 31 December)

Table 1

DISTRIBUTION OF H_2S HOURLY AVERAGES (30 ppb) 1977

Station		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Percent
1 Geyser Rock	≥30[a]	11	17	10	12	8	22	39	33	28	45	10	10	245	3
	Days[b]	5	7	1	6	4	11	16	14	13	17	5	5	106	29
	Counts[c]	673	587	713	685	737	719	713	705	694	718	679	648	8271	94
2 Anderson Ridge	≥30[a]	11	31	5	11	25	65	80	70	10	51	17	20	196	5
	Days[b]	4	11	4	9	8	20	17	15	5	8	3	7	111	30
	Counts[c]	696	617	706	708	721	718	712	721	693	747	665	668	8172	96
3 Kahm Ranch	≥30[a]	0	0	0	1	0	1	0	0	2	0	0	0	4	05
	Days[b]	0	0	0	1	0	1	0	0	1	0	0	0	3	8
	Counts[c]	700	583	713	697	740	718	712	716	660	709	677	672	8297	95
4 Pine Summit	≥30[a]	0	0	1	2	1	12	13	17	4	5	5	4	64	7
	Days[b]	0	0	1	2	1	6	5	6	1	3	3	2	30	8
	Counts[c]	664	654	672	685	738	717	666	731	705	731	690	700	8353	95
5 Windstreing Pine	≥30[a]	0	0	0	4	0	0	0	0	10	2	1	0	17	2
	Days[b]	0	0	0	3	0	0	0	0	6	2	1	0	12	3
	Counts[c]	700	633	698	713	681	715	705	703	662	721	656	282	7869	90
6 Anderson Springs	≥30[a]	0	0	0	0	2	6	1	8	0	8	0	0	25	3
	Days[b]	0	0	0	0	1	2	1	4	0	2	0	0	10	3
	Counts[c]	664	633	670	679	622	717	703	708	703	714	689	679	8201	94
7 Sawmill Flats	≥30[a]	0	1	0	2	1	3	8	4	1	1	0	0	21	3
	Days[b]	0	1	0	1	1	3	7	3	1	1	0	0	18	5
	Counts[c]	671	636	662	694	712	713	715	711	698	754	677	677	8300	95
8 Aldin Ranch	≥30[a]	15	2	3	0	12	12	5	12	26	122	56	19	284	4
	Days[b]	9	2	2	0	3	6	3	4	7	23	20	8	87	24
	Counts[c]	478	601	682	513	688	689	518	678	660	708	585	542	7342	84
Monthly totals	≥30	37	51	19	32	49	121	146	144	81	234	89	53	(All stations)	
	≥30	15	3	4	9	16	34	27	41	43	138	62	23	(Stations 3-8)	

a ≥30 ppb — number of H_2S hourly averages at or above 30 ppb (The actual measurement per hour must have averaged 29.5 or more)

b Days — number of days with at least one hour reading at or above 30 ppb

c Counts — number of valid hourly averages (percent counts correspond to valid data capture for 1 January through 31 December)

A-5

Table 1

DISTRIBUTION OF H_2S HOURLY AVERAGES (30 ppb) 1978

Station		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Percent
1 Geyser Rock	≥30[a]	5	2	1	14	1	23	56	28	7	23	12	16	188	2
	Days[b]	1	2	1	7	1	9	18	11	5	9	7	8	79	22
	Counts[c]	595	602	719	675	691	590	723	687	612	724	558	657	7835	89
2 Anderson Ridge	≥30[a]	3	1	2	1	13	84	62	22	33	23	10	46	300	4
	Days[b]	2	1	2	1	6	18	14	7	14	13	6	16	100	27
	Counts[c]	600	539	712	679	676	575	591	481	497	596	659	711	7316	84
3 Kahm Ranch	≥30[a]	0	0	0	0	0	0	0	1	0	1	0	0	2	0.03
	Days[b]	0	0	0	0	0	0	0	1	0	1	0	0	2	0.5
	Counts[c]	470	605	727	673	694	645	719	710	700	682	372	578	7575	86
4 Pine Summit	≥30[a]	0	0	0	0	0	3	18	18	10	14	0	0	63	0.9
	Days[b]	0	0	0	0	0	1	7	8	6	5	0	0	27	8
	Counts[c]	607	595	611	692	335	646	714	728	712	547	242	553	6982	80
5 Whispering Pine	≥30[a]	0	1	7	2	0	0	3	0	3	6	3	0	25	0.3
	Days[b]	0	1	5	1	0	0	2	0	2	4	3	0	18	5
	Counts[c]	562	571	687	683	698	634	723	716	666	648	537	420	7545	86
6 Anderson Springs	≥30[a]	0	0	0	0	0	2	0	2	0	0	0	0	4	0.05
	Days[b]	0	0	0	0	0	1	0	2	0	0	0	0	3	0.8
	Counts[c]	587	601	609	689	705	645	726	719	690	687	697	742	8097	92
7 Sawmill Flats	≥30[a]	0	0	0	0	0	1	3	0	0	4	0	0	8	0.1
	Days[b]	0	0	0	0	0	1	2	0	0	2	0	0	5	1.4
	Counts[c]	605	613	734	655	696	646	725	719	710	331	380	725	7539	86
8 Aidlin Ranch	≥30[a]	12	9	0	0	0	0	66	41	7	94	62	9	300	6
	Days[b]	9	6	0	0	0	0	16	10	3	17	10	6	77	21
	Counts[c]	552	358	0	0	0	0	673	689	677	592	501	716	4758	54
Monthly totals.	≥30	20	13	10	17	14	113	208	112	60	165	87	71	890	
	≥30	12	10	8	9	7	30	59	39	30	51	26	30	311	

a ≥30 ppb = number of H_2S hourly averages at or above 30 ppb (The actual measurement per hour must have averaged 29.5 or more)

b Days = number of days with at least one hour reading at or above 30 ppb

c Counts = number of valid hourly averages (percent counts correspond to valid data capture for 1 January through 31 December)

TABLE E-I

ESTIMATED GEYSERS POWER PLANT H_2S EMISSIONS
1977, ARB/NSCAPCD STRATEGY 1984, VARIANCE 1984

Unit	1984 Gr/GMW	1977 Emissions[a] No Abate Day Assumed	ARB & NSCAPCD Strategy 1984 (No Variance Assumed)	PG&E/NSCAPCD Variance 1984
PG&E #1	200	32.5 lbs/hr	5.5 lbs/hr	5.5 lbs/hr
PG&E #2	200	39.1[b]	6.1	6.1
PG&E #3	200	115.7[b]	11.1	11.1
PG&E #4	200	87.4[b]	11.1	11.1
PG&E #5	200	213.3[b]	24.2	11.1
PG&E #6	200	274.6[b]	24.2	11.1
PG&E #7[c]	200	178.1	24.2	225
PG&E #8	200	111.0	24.2	111
PG&E #9	200	51.9	24.2	51.9
PG&E #10	200	70.1	24.2	70.1
PG&E #11	200	193.3	48.4	48.4
PG&E #12	200		48.4	48.4
		Total 1367.0 lbs/hr	Subtotal 276.0[d] lbs/hr	Subtotal 568.0 lbs/hr[d]
PG&E #13			11.3	11.3
PG&E #14	100		24.2	24.2
PG&E #15	100		12.5	12.5
PG&E #17			26.4	26.4
PG&E #18			11.6	11.6
MUD #1			8	8
PG&E Unit #16			5	5
CPA #2			24.2	24.2
			Total 399.0	Total 691.0

[a] Source SAI, 1979. Assumed 80% operation of plant.
[b] Assumed no abate day
[c] To illustrate the uncertainty of emissions; Unit #7 displayed a predicted emissions rate of from 175 to 325 lbs/hr during EIC pilot tests.
[d] No allotment for 20% downtime. Assumed other sources would contribute similarly.

APPENDIX B

Legal Briefs and General Counsel's Opinion on Lake County's Proposed Condition to Impose Payment Requirement on Applicant in Lieu of ad valorem taxes.

79-AFC-4

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County of Lake

ENERGY COMMISSION
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SEP 15 1980

STATE OF CALIFORNIA
STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

In the matter of:	79-AFC-4
Application for Certification of Department of Water Resources re: Bottlerock Geothermal Power Plant.	BRIEF IN SUPPORT OF LAKE COUNTY'S PROPOSED FINDINGS AND CONCLUSIONS.

Background

The Department of Water Resources, hereinafter "DWR", applied to this Commission for certification to build a geothermal power plant in Lake County designated as Bottlerock Geothermal Power Plant hereinafter "Plant." DWR is an administrative agency of the State of California created and exisiting pursuant to the provisions of Article 1 of Chapter 2 of Division 1 of the Water Code commencing with section 120.

The County of Lake petitioned the Commission for leave to intervene, which said petition was granted. The County's primary concern as expressed in its petition was the socio-economic impact of siting this Plant in Lake County. One such impact is the non-realization of revenues if DWR constructs the Plant in Lake County.

This result appertains as a direct consequence of the following indisputable facts:

1. The geothermal resource in the Geysers Known Geothermal Resource Area capable of development to commercially produce electrical energy is finite.

2. The production of electrical energy by taxable entities from the finite resource underlying lands in Lake County will generate finite ad valorum revenues to local agencies as determined by Revenue and Taxation Code sections 2201 et. seq., including the County of Lake.

3. The production of electrical energy by the Department of Water Resources from the finite resource underlying lands in Lake County will use a portion of such finite resource which then will be unavailable for production by taxable entities.

4. The Department of Water Resources is exempt from the payment of ad valorum property taxes pursuant to the provisions of Article XIII, Section 1 of the Constitution of the State of California.

5. Such exemption and production will result in Lake County local agencies receiving less than the finite ad valorum revenues they would otherwise receive if all production was by taxable entities.

To mitigate this impact, the County of Lake has proposed that the Commission, as a condition of granting the application for certification, require DWR to "annually on or before December 10, pay to the County of Lake a sum equal to the total amount of ad valorum property taxes it would have paid but for the exemption

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of Article XIII, Section 1 of the Constitution of the State of California to be distributed by the County of Lake to those local agencies who would otherwise be entitled to them pursuant to the provisions of Revenue and Taxation code sections 2201 et. seq.

DWR disputes the Commission's authority to impose the afore specified condition.

Points and Authorities

I. The Legislature could require the payment of DWR.

Article IV, Section 1 of the California Constitution vests in the Legislature the whole of the legislative power of the state. The Legislature may deal with any subject within the scope of civil government, except so far as restrained by the Constitution. Melvin v. State (1898) 121 C 16; People v. San Joaquin etc. (1907) 151 C 797. Powers incident to sovereignty that are not mentioned in or limited by the Constitution inhere in the government. The express enumeration of legislative powers in the Constitution is not exhaustive of others not named unless accompanied by negative terms. Jensen v. McCullough (1928) 94 CA 382, MacMillan Co. v. Clarke (1920) 184 C 491. If presented with the facts, as set forth in the proposed findings of Lake County, the Legislature could authorize the payment as proposed in the conclusion.

Only two Constitutional provisions can be cited as possible limitations on the Legislature's power to authorize the payments proposed by Lake County. Article XIII, Section 1 exempts the property of the state from taxation. As commonly used, a "tax"

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is defined as a charge, a compulsary exaction, or an enforced proportional contribution. Perry v. Washburn (1862) 20 C 318; People v. Naglee (1850) 1 C 232; McHenry v. Downer (1897) 116 C 20. However, a voluntary payment of money as proposed, is not a tax and would not be prohibited by the Constitution.

Article XIII, Section 25 of the Constitution prohibits the Legislature from making a gift of public funds. The most notable exception carved out by the courts to this prohibition is the public purposes exception. Alameda County v. Carleson (1971) 5 C3d 730; Santa Barbara etc. v. All Persons (1957) 47 C2d 699.

"It is generally held that in determining whether an appropriation of public funds is to be considered a gift, the primary question is whether the funds are to be used for a 'public' or 'private' purpose; the benefit to the state from an expenditure for a public purpose is in the nature of consideration and the funds expended are therefore not a gift..." County of Alameda v. Carleson, Id. at pp. 745-746.

The "funds", if authorized by the Legislature as proposed by Lake County, would be used and are restricted to uses as authorized by the Legislature and by the Constitution. The time honored presumption that public officials will do their duty, in this case expend the funds lawfully only for public purposes, is sufficient to conclude that such an appropriation would not be a gift of public funds. Evidence Code section 664. As expressed by the Carleson (supra) Court each expenditure for a public purpose by Lake County entities would constitute consideration and again the appropriation would not be a gift of public funds.

II. The Legislature could delegate to the Commission the authority to ascertain the facts and impose the condition.

While it is a well-recognized maxim of constitutional law that the legislature cannot delegate to any other department or body its authority to make laws, it is an equally well-recognized principle that the legislature, not withstanding it may do things itself, may nevertheless authorize them to be done by ministerial officers or boards when it believes that they can do them more conveniently and effectively than it can itself. Ex parte McManus (1907) 151 C 331, 335. This general concept has been examined on numerous occasions by the supreme court. The most authoritative treatment was done by Justice Tobriner in Kugler v. Yocum (1968) 69 C2d 371. The relevant and pertinent portions of the Kugler (id.) case are set forth commencing at page 375 as follows:

"At the outset, we note that the doctrine prohibiting delegation of legislative power,...is well established in California."

"Several equally well established principles, however, serve to limit the scope of the doctrine proscribing delegations of the legislative power."

"'The essentials of the legislative function are the determination and formulation of the legislative policy. Generally speaking, attainment of the ends, including how and by what means they are to be achieved, may constitutionally be left in the hands of others. The Legislature may, after declaring a policy and fixing a primary standard, confer upon executive or administrative officers the 'power to fill up the details' by prescribing adminis-

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trative rules and regulations to promote the purposes of the legislation and to carry it into effect...'"

"It is well settled that the legislature may commit to an administrative officer the power to determine whether the facts of a particular case bring it within the rule or standard previously established by the legislature..."

"'...while the legislative body cannot delegate its power to make a law, it can make a law to delegate a power to determine some fact or state of things upon which the law makes or intends to make its own action depend.'" (Emphasis added)

As to the need for "standards" by which an administrative agency is to guide its action when legislative authority is delegated the Kugler (supra) court at pages 381-382 citing an Oregon Supreme Court case says:

"It is now apparant that the requirement of expressed standards has, in most instances, been little more than a judicial fetish for legislative language, the recitation of which provides no additional safeguards to persons affected by the exercise of the delegated authority. ...[T]he important consideration is not whether the statute delegating the power expresses standards, but whether the procedure established for the exercise of the power furnishes adequate safeguards to those who are affected by the administrative action."

From the foregoing it is apparent that the Legislature may delegate any of its powers except that of policy making; it may establish policy and permit administrative agencies to attain the results desired; and it may establish policy and delegate the power to determine the facts to which that policy applies.

III. <u>The Legislature has constitutionally delegated the authority to the Commission to impose the condition.</u>

The Legislature has declared that economic impacts of power plants permitted by state agencies be mitigated. This policy declaration is contained in Division 13 of the Public Resouces Code (P.R.C.) commencing with section 21000, commonly known as the Environmental Quality Act of 1970 (CEQA) and Division 15 of the P.R.C. commencing with section 25000, commonly known as the Warren-Alquist Act.

CEQA establishes a comprehensive scheme for addressing the impacts of projects approved by every public agency. An environmental impact report is an informational document which shall be considered by every public agency prior to its approval or disapproval of a project. The purpose of the report as well as CEQA is to insure that public agencies are provided with detailed information about the effect which a proposed project is likely to have on the environment. P.R.C. § 21061 Economic considerations must be considered by the public agency. The Legislature declares this policy specifically in section 21001 P.R.C. subsection (g) as follows to: "Require governmental agencies at all levels to consider qualitative factors as well as economic and technical factors..." This declaration has been interpreted by the Director of the Resources Agency, of which DWR is a part, in section 15012 of Title 14 of the Administrative Code as follows:

"While CEQA requires that major considerations be given to preventing environmental damage, it is recognized that public

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agencies have obligations to balance other public objectives, including economic and social factors in determining whether and how a project should be approved."

CEQA is a comprehensive statutory scheme establishing a public policy that impacts be identified and where feasable mitigated. It contains a detailed procedure for identifying and addressing impacts with numerous safeguards for protecting applicants from abuse of discretion delegated.

The Warran-Alquist Act, like CEQA, is an equally comprehensive statutory scheme establishing public policy and providing adequate safeguards. The legislature has determined that the Commission can deal with all aspects of powerplant development more effectively than having it fragmented between itself, the PUC and numerous state and local agencies. Section 25005 P.R.C. declares: "The Legislature further finds and declares that prevention of delays and interruptions in the orderly provision of electrical energy, protection of environmental values, ...require expanded authority and technical capability within state government." Section 25006 P.R.C. declares: "It is the policy of the state and the intent of the Legislature to establish and consolidate the state's responsibility for energy resources..."

When considered in light of the foregoing "intent" sections and the "liberal construction" language provisions of Section 25218.5 P.R.C., it is clear that the substantive provisions of the enabling sections of the Commission confer authority to impose the condition contained in the conclusion.

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Section 25500 P.R.C. consolidates all authority in the Commission to permit powerplants and provides that the issuance of a certificate by the commission shall be in lieu of any permit etc. and "shall supercede any applicable statute,... of any state..." The economic impact on local agencies is a proper subject for commission consideration and is specifically authorized by Section 25509.5 P.R.C. which provides that at a public informational hearing the commission shall "obtain the views and comments of...concerned governmental agencies on the environment, public health and safety, economic, social and land use impacts of the facility at the proposed site." The Commission then may carry these concerns through the process of the summary and hearing order (§ 25512 P.R.C.), the final report (§ 25514 P.R.C.), the decision on the notice of intent (§ 25516 P.R.C.), the application for certification process (§ 25519 P.R.C.) and the decision on the application for certification (§ 25523 P.R.C.).

It is clear that CEQA and the Warren-Alquist Act are a clear declaration by the Legislature that the economic impact should and can be mitigated. It has delegated the authority to the commission to ascertain the facts and to attain the goals and ends specified in the Acts.

Conclusions

1. The Legislature, presented with the facts of this case, could authorize the payments proposed by Lake County;

2. The Legislature could delegate to the Commission the authority to ascertain the facts and to accomplish the goals of the Legislature.

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3. CEQA and the Warren-Alquist Acts constitutionally establish the public policy that economic impacts be mitigated and delegate to the Commission the authority to ascertain the facts and where appropriate impose the mitigation measure.

4. The mitigation measure proposed by Lake County is feasable and may be imposed by the Commission.

Respectfully submitted this 12th day of September, 1980.

COUNTY OF LAKE

Charles D. Haughton

CHARLES D. HAUGHTON
County Counsel

PROOF OF SERVICE (REVISED_____) FILED WITH
ORIGINAL. MAILED FROM SACRAMENTO ON 9/12/80
JD

79-AFC-4

STATE OF CALIFORNIA

ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

ENERGY COMMISSION
RECEIVED
SEP 12 1980

In the Matter of:	Docket No. 79-AFC-4
Application for Certification of the State Department of Water Resources' Bottle Rock Geothermal Power Plant.	OPINION OF THE GENERAL COUNSEL IN RESPONSE TO PARAGRAPH 2 OF FIRST COMMITTEE HEARING ORDER

The First Committee Hearing Order requests a formal opinion on the question of Commission authority to condition certification of the DWR Bottle Rock project upon annual payment by DWR to the county of an amount equivalent to the property taxes which DWR would have paid but for the exemption of Article XIII, section 1 of the California Constitution.

CONCLUSION

While the Commission's ability to adopt conditions to certification of facilities is very broad, the Legislature has not granted the Commission authority to impose, as a condition of facility certification, a requirement that a state agency make an annual payment to compensate local government for lost property tax revenues resulting from state ownership of the facility.

ANALYSIS

In this proceeding, Lake County has imaginatively addressed a problem which is generic to local government

whenever a state or federal agency develops land within the geographic boundaries of the local government--the loss of tax revenues that would have accrued if the development had been undertaken by a private party. Lake County suggests that while the California Constitution (Art. XIII, §1) exempts all state property from local taxation, the State Legislature may legally authorize payment of an equivalent sum and may delegate that authority to the Commission. The County also argues this would not be a gift of public funds, prohibited by Article XIII, section 25 of the State Constitution because a public purpose would be served by the payment. Finally, the County concludes that because the Legislature has given the Commission consolidated authority for resolving problems associated with the construction and operation of major generation facilities (over 50 mw), the Legislature has granted the Commission authority to meet this local concern.

The county would appear to be correct in its contention that the Legislature could make such a payment and that it would not be invalid as a gift of public funds. Such a payment would certainly be no more improper than the Legislature's payments to local government in the wake of Proposition 13 on the June 1978 ballot. (See Gov. Code §§ 16250, et seq.; cf. Sonoma County Organization of Public Employees v. Sonoma County (1979) 23 Cal.3d 296, 319-20 (invalid provision limiting local cost of living increases found severable from whole local government relief scheme, thereby implying that the remaining portions of the law were valid.) But the county's theory runs into difficulty with

its assumption that the Legislature intended for the Commission to have the power to order another state agency to make such payments as a condition to a license to proceed with construction. In my opinion there is insufficient indication in the Warren-Alquist Act, even given the need to give it a "liberal construction" (Pub. Res. Code § 25218.5), of any legislative intent to delegate to the Commission the power to require another state agency to pay local government a fee in lieu of the taxes which the state agency is constitutionally exempt from paying.

The Energy Commission does have very substantial authority to impose conditions on certification of facilities, in order to mitigate adverse environmental and economic impacts of the facility and in order to carry out critical energy policies established by the Commission in its planning function pursuant to Public Resources Code sections 25300, et seq. (See Pub. Res. Code §§ 25514(d), 25523.) Where the clear purpose of a condition is to insure (1) that provision of needed electricity will not unduly harm environmental quality, (2) that California will have a reliable supply of electricity at a reasonable cost, or (3) that limited carrying capacities will be stretched as far as possible, there is a strong basis for finding legislative intent in the opening sections of the Act (Pub. Res. Code §§ 25000-25507) to provide Commission authority to impose the condition.

Where, as in this case, the purpose of a condition is to address some more general societal concern, not directly

addressed in the Warren-Alquist Act, the Commission's authority is subject to question. Here the goals of environmental protection and reliability of electricity supply could, at most, be incidentally benefited by county expenditure of the in lieu payments, but the main goal is clearly to aid a local government with its fiscal problems. Nothing in the purposes or provisions of the Warren-Alquist Act suggests that the Legislature intended to have the Commission address this problem in carrying out its facility certification function.

This is not to say that all of the conditioning power of the Commission need be found in express provisions in the Warren-Alquist Act. Some powers can be inferred from the fact that the Legislature consolidated at the Energy Commission the responsibility for exercising many powers previously held by other state and local agencies. For example, the failure of the Act to specifically state that the Commission may impose any condition a county could impose in granting a use permit does not prevent the clear implication of legislative intent to grant the Commission such authority since the Commission's certification procedure takes the place of the use permit (Pub. Res. Code § 25500) and there is no indication that the Legislature intended any contraction of previous substantive regulatory authority over construction and operation of facilities. But in this case there was no agency which exercised the authority to address the county's economic concern by imposing conditions to a permit for a power plant before the Warren-Alquist Act was enacted. Thus the Act's

consolidation of previous regulatory functions in the Commission does not imply any transfer of such authority from a prior source.

The county points out that the geothermal resources of the county are limited and therefore state development of such resources reduces the county's ability to maximize its property tax revenues from geothermal production. However unfortunate this result may be though, it is no different from the problem a county has when the state or the federal government develops some of the finite land located in the county. The exemption from property taxation which state agencies enjoy is widely understood in many contexts. We must assume therefore, that the Legislature is aware of the exemption and if it intended to make a special exemption to this general rule, it would clearly state such intent. Moreover, if it intended to take the more unusual step of expressing that intent by allowing a state agency, such as the Commission, to make judgments on the propriety of compensating the county under these circumstances rather than directly making such judgments itself, we could expect a very express statement delegating such authority to the Commission. Instead, given the terms of the Warren-Alquist Act, in this case we would have to imply such authority from very general powers of and directions to the Commission. (E.g. The Commission must consider the comments of local agencies. Pub. Res. Code §§ 25506, 25519(f).) This is not a sufficient basis for assuming willingness to have the Commission order an exception to a constitutional exemption.

I must emphasize that this conclusion is in no way affected by the amount of money required to satisfy the proposed condition. The Commission may order an applicant for certification of a facility to add pollution control equipment or make other expenditures which may double or triple the capital cost of a project upon a reasonable showing that requiring such expenditures is necessary to properly carry out the Commission's principal functions and policies, but the Commission may not, without clearer legislative authority, undertake an equitable redistribution of state and local funds even if a relatively small amount is involved. This conclusion does not, however, leave the county without a remedy. The county may still raise its concern in the Legislature which does have the power to cure any unusual inequities resulting from application of Article XIII, section 1 of the Constitution in the context of geothermal development by the Department of Water Resources.

Dated: September 12, 1980.

Respectfully submitted,

William M. Chamberlain

WILLIAM M. CHAMBERLAIN
General Counsel
California Energy Commission

STATE OF CALIFORNIA
ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

79-AFC-4

ENERGY COMMISSION
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In the Matter of: Application for Certification of the STATE DEPARTMENT OF WATER RESOURCES' Bottle Rock Geothermal Project	Docket No. 79-AFC-4 APPLICANT'S BRIEF ON AUTHORITY OF COMMISSION TO REQUIRE PAYMENT BY APPLICANT OF "IN-LIEU" PROPERTY TAXES TO LAKE COUNTY

This brief is filed pursuant to the September 4, 1980, First Committee Order, item 3.

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I.

INTRODUCTION

Intervener, County of Lake (County), has proposed that the California Energy Commission (Commission) condition the granting of the Applicant, State Department of Water Resources' Application for Certification on the payment of taxes in lieu of ad valorem property taxes. The Applicant (Department) is proposing to construct a nominally rated 55 megawatt powerplant and related facilities in Lake County on the Francisco leasehold. The land itself, upon which the powerplant and related facilities will be located, is not owned by the State and is subject to ad valorem taxation by the County. The value of the powerplant and related facilities will not be included in the County's tax base.

II.

PROPERTY OF APPLICANT, DEPARTMENT OF WATER RESOURCES, IS NOT SUBJECT TO AD VALOREM PROPERTY TAXATION BY INTERVENER LAKE COUNTY.

The Department of Water Resources is a department of the government of the State of California. California Water Code Section 120 et seq.; California Government Code Section 11150 et seq. As such its property is exempt from property taxation. California Constitution Article XIII, Section 3(a)[1]

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1. California Constitution Article XIII, Section 3 provides in part:

"The following are exempt from property taxation:
(a) Property owned by the State ...."

The County apparently agrees with this conclusion as it is not requesting the Commission to require the Department to pay ad valorem property taxes. It is instead requesting the Commission to require the Department to pay the same taxes, but by a different name, i.e. "a sum equal to the total amount of ad valorem property taxes it would have paid but for the exemption of Article XIII, Section 1 (sic) of the Constitution of the State of California." County's Proposed Findings and Conclusions, page 2, lines 16 through 19. The County cannot avoid the Constitutional exemption from property taxes afforded State property by calling the tax by another name.[2/]

III.

EVEN UNDER CLOSELY ANALOGOUS, THOUGH NOT APPLICABLE CIRCUMSTANCES, THE COURTS HAVE NOT ALLOWED TAXATION AS PROPOSED BY THE COUNTY.

California courts have dealt with the issue specifically raised by the County while interpreting another section of the Constitution which excepts from the ad valorem property tax exemption afforded local governments in Article XIII, Section 3(c) property owned by a local government which is outside its boundaries. Even with this special constitutional provision applicable to local governments, to protect local governments from lost revenues, the courts have rejected the County's claimed entitlement to ad valorem property taxes.

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2. "What's in a name? That which we call
a rose
By any other name would smell as
sweet."
William Shakespeare, Romeo and Juliet, Act II, Scene 2, Line 43.

Article XIII, Section 3(b) exempts from property tax "Property owned by a local government, except as otherwise provided in Section 11(a)." Article XIII, Section 11(a) provides that "Lands owned by a local government that are outside its boundaries ... are taxable if ... they were taxable when acquired by the local government". While the Department's property does not fall within the purview of this provision, (there are no exceptions to the property tax exemption afforded State property), judicial interpretation of the provision is instructive in this case. In fact, it demonstrates that even if the Department was a local government (which it is not), it would not be required to pay the County ad valorem property taxes under Article XIII, Section 11(a).

In County of Tuolumne v. State Board of Equalization, 206 C.A.2d 352 (1962), Tuolumne County made the same claim as Lake County makes in this case, though it based its claim on the constitutional exception. In the lawsuit, Tuolumne County sought certain tax revenues from the City and County of San Francisco for appropriative water rights in Tuolumne County owned by San Francisco. Tuolumne County asserted in its brief before the Court: "If the water rights had not been taken up by the City [San Francisco] or some other public corporation, they certainly would have been taken and used by private concerns or individuals and would have contributed immeasurably to the tax base of Tuolumne County." (206 C.A.2d at 358). This is the same argument asserted by Lake County. The Court rejected Tuolumne County's claim.

The Court found that the constitutional exception, allowing taxation of land (which includes water rights) owned by another county, was intended to "safeguard the tax revenues of smaller counties wherein large municipal corporations had purchased, or would acquire, extensive holdings and which would, except for the amendment [exception], be exempt from local taxation", 206 C.A.2d at 364-5, quoting from City and County of San Francisco v. County of Alameda, 5 Cal.2d 243, at 245-6.

Nonetheless, the Court held that Tuolumne could not assess San Francisco's water rights because the water rights were not taxable at or prior to the time San Francisco acquired them. The Court stated that "it is the taxability of the property as it stood at the time of acquisition, and immediately before transfer, that is determinative". The mere fact that if a taxable entity had purchased the property, and additional revenues thus could have been available to the county, was not relevant to the Court's determination. The Court determined that the constitutional exception was intended "to prevent the removal of private property from the tax rolls upon purchase by an outside county", 206 C.A.2d at 365. (Emphasis added). Property that was not taxable at the time it was acquired by the outside county, i.e., on the county's tax rolls, (water rights appropriations in that case) was not then taxable in the hands of the outside county as no private property was taken off the tax rolls.

The Court thus determined that the county had no intrinsic right to obtain tax revenues from a natural resource

found within its boundaries. (Accord, see County of Amador v. State Board of Equalization, 240 C.A.2d 205, at 213 (1966)). Similarly, even if the Constitutional exception applied to the State, the Department's property could not be taxed because it will not have taken any private property off the tax rolls. In short, there was no taxable property in existence prior to the Department's activities.

Furthermore, and following the same analogy with the Constitutional exception for local governments, the Department's powerplant could not be taxed because it is an improvement. Article XIII, Section 11(a) specifically limits the taxation of improvements owned by a local government that are outside its boundaries to those improvements that "were taxable when acquired or where constructed by the local government to replace improvements which were taxable when acquired". In no event would new improvements, in this case, a powerplant, be taxable. As explained in Section I, the land itself is subject to taxation.

Thus, even when the Legislature and the people enacted a specific constitutional provision to safeguard county revenues, they did not go as far as Lake County would like to go in this case, without any legislative or constitutional authority. The County is clearly asking for something which the law does not allow.

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IV.

THE ENERGY COMMISSION HAS NO AUTHORITY TO REQUIRE AS A CONDITION OF THE DEPARTMENT'S CERTIFICATION FOR BOTTLE ROCK POWERPLANT PAYMENT OF "IN-LIEU" TAXES TO THE COUNTY.

Assuming for the purposes of argument that the property of the State could be subject to "in-lieu" taxation, still, the Energy Commission could not order payment of such taxes.

A. Only the Legislature may impose a tax. It may not delegate this authority.

It is fundamental to our system of government that the power to tax "is vested exclusively in the Legislature". Emery v. San Francisco Gas Co., 28 Cal. 345 at 355 (1865). The Legislature must originate a tax and prescribe the rules under which it is to be levied. See generally 13 California Jurisprudence Third, Constitutional Law, Sections 104 and 164. California courts have viewed taxation as having two elements; first, the imposition of the tax and second, the assessment and collection of the tax". The former is a legislative function; the latter is mere machinery, and is delegable...." Gadd v. McGuire, 69 Cal.App. 347, 364-5 (1924).

The Legislature may not delegate to an administrative agency its power to impose a tax. The Constitution prohibits the delegation of legislative functions to administrative agencies. Harbor Comm'rs. v. Redwood Co., 83 Cal. 491 (1891).

It is clearly appropriate for the Legislature to delegate certain quasi-legislative powers to administrative agencies. (See EX Parte McManus, power to adopt rules

regulating the admission of persons to practice the profession of architecture; In re Halck, 215 Cal. 500 (1932), power to administer legislation regulating personal property brokers; Fillmore Union High School Dist. v. Cobb, 5 Cal.2d 26 (1935), power to adopt conditions upon which students who reside in one county may be permitted to attend a high school in another county; Holloway v. Purcell, 35 Cal.2d 220 (1950), power to determine when and where freeways will be constructed; and Ray v. Parker, 15 Cal.2d 275 (1940), power to implement the Milk Stabilization Act including power to designate marketing areas, formulate plans, and prescribe contents of plans.)

The Constitution, however, prohibits the delegation to administrative agencies of the power to tax. Acts attempting to delegate the power to tax have been specifically overturned by the California Supreme Court. Houghton v. Austin, 47 Cal. 646 (1874). The Supreme Court in S.F. & N.P.R.R. Co. v. State Board, 60 Cal. 12 (1882), upheld a delegation of certain powers (including the power to assess the value of railroad property operated in more than one county) to the State Board of Equalization by finding specifically that the Act in question did not confer upon the Board the power of levying a tax. (60 Cal. at 34). Simply, the courts have struck down, as unconstitutional, attempted delegations of power to tax.

Judicial evaluation of legislative delegations has turned on the simple criteria that a non-delegable legislative function is the determination and formulation of legislative policy. First Industrial Loan Co. v. Daugherty, 26 Cal.2d 545 (1945), held that a regulation of the Commissioner of

Corporations concerning use of surplus monies to affect debts and losses was an unconstitutional delegation of the taxing power). Absent a policy determination by the Legislature that the Commission should impose a tax on the State, the Commission has no authority to impose such a tax on its own. That determination is constitutionally non-delegable.

B. The Legislature has not authorized the Energy Commission to impose "In-Lieu" Taxes as a condition of granting the Department's Application for Certification.

The Energy Commission may not, on its own, impose a tax on the Department. We have demonstrated that the power to tax is a non-delegable legislative function. The question, then, assuming that State property could be the subject of "in-lieu" taxes, is whether the Legislature has established a policy authorizing the Energy Commission to impose a tax. Clearly, as we will show, the Legislature has not.

There has been no demonstrated legislative policy determination that the Department should be required to pay "in-lieu" property taxes. The broad legislative intent provisions in the Warren-Alquist Act (Public Resources Code Section 25000 et seq.), provide no justification for the conclusion that the Legislature intended to impose "in-lieu" property taxes on State property. Even in light of the "liberal construction" language of Public Resources Code Section 25218.5, these "intent" sections manifest no legislative policy with regard to taxation. A policy determination of authority to impose a tax just cannot fairly be read into the general

legislative intent sections.

Similarly, while Public Resources Code Section 25000 et seq. confers broad authority on the Commission in the siting of powerplants, those provisions contain no legislative determination regarding "in-lieu" property taxation of State property. Certainly, the Legislature would not have left to inference such a determination as is suggested by the County.

The earliest printed versions of the legislation which was to become the Warren-Alquist Act (Assembly Bill 1575, 1973-4 legislative session) contained a provision very similar to the constitutional exception discussed in Section III. That provision would have required the Commission to condition certification of a powerplant proposed by a local government to be sited outside of its boundaries upon payment of "in-lieu" property taxes.[3]

The Legislature deleted this provision from the January 9, 1974 version of Assembly Bill 1575 and did not include it in any subsequent version. While that provision would not have applied to the Department, the fact that the Legislature considered that provision and rejected it

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3. The May 29, 1973 and August 6, 1973 versions of Assembly Bill 1575 contained the following provision:

> "The Commission shall require as a condition of certification of any facility contained in the application, that any city, city and county, or county, proposing to site a facility in any other city, city and county, or county, or any district or other public agency proposing to site a facility outside its district or the boundaries of its jurisdiction, shall provide for an annual payment in lieu of property taxes on such site to such city, city and county, or county. The amount of such payment shall be determined by the State Board of Equalization."

demonstrates that the Legislature did not intend to give the Commission the power to impose "in-lieu" property taxes.

V.

THE PAYMENT OF IN-LIEU TAXES BY THE DEPARTMENT WOULD BE AN UNCONSTITUTIONAL GIFT OF PUBLIC FUNDS.

Article XVI, Section 6 of the California Constitution provides in relevant part as follows:

> "...nor shall [the Legislature] have power to make any gift or authorize the making of any gift, of any public money or thing of value to any individual, municipal or other corporation whatever;..."

This constitutional provision prohibits the Legislature from making a gift of public funds. Had the Legislature attempted to require payment of "in-lieu" property taxes by the Department (which it has not, see discussion in Section IIIB) such an attempt would be void because of this prohibition.

The one judicially recognized exception to this prohibition is when there is a "public purpose" served by the gift. In order to fall within this exception the gift must serve a public purpose of the donor agency (Department), not the donee agency (County). Santa Barbara Etc. Agency v. All Persons, 47 Cal.2d 699 (1957), reversed on other grounds, 357 U.S. 275 (1958). The fact that the County may use revenue generated by this proposed tax for public purposes is irrelevant. The donor agency public purpose served provides the "adequate consideration" necessary to uphold a gift of public funds in the face of the constitutional prohibition. (California Sch. Employees Ass'n. v. Los Angeles Elementary Sch. Dist., 35 C.A.3d 46 (1973,).

The only Departmental purpose that could conceivably be served is avoiding delay of the proceedings. This purpose is not the kind of purpose which courts have determined provide adequate consideration for a gift of public funds.[4] This possible purpose of avoiding delay we submit is not adequate consideration.

In addition, regardless of the Commission's decision on this matter, and regardless of any subsequently initiated litigation or legislation, this proceeding need not be delayed even one day. At issue is simply a question of the payment of money. The Commission (and any court) would have no justification for delaying the project when the remedy is simply the payment of money. No irreparable injury would occur to any party if the project proceeds while the issue of payment of money is determined.

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4. Courts have ruled that the following public purposes provided adequate consideration for gifts of public funds:

Employment incentives with goal of self-sufficiency and getting people off of welfare rolls, County of Alameda v. Carleson, 5 Cal.3d 730 (1971); education of the young, Miller v. Compton Junior College Dist., 77 C.A.2d 719 (1947); promotion of patriotism, Allied Architects' Assn. v. Payne, 192 Cal. 431 (1923); conservation and beneficial use of domestic waters of the State, Santa Barbara, supra; providing aid to needy aged, County of Los Angeles v. La Fuente, 20 Cal.2d 670 (1942); releasing liens on property owned by indigent welfare recipients, County of Alameda v. Janssen, 16 Cal.2d 276 (1940); providing aid to indigent sick and poor persons, San Francisco v. Collins, 216 Cal. 187 (1932); providing tax refund to certain charitable institutions, Doctors General Hospital v. County of Santa Clara, 188 C.A.2d 636 (1961); and providing hospital care to paupers and others unable to afford private care, Goodall v. Brice, 11 C.A.2d 540 (1936). The appropriation of state funds based on a moral obligation has been ruled an unconstitutional gift, Veterans' Welfare Board v. Riley, 189 Cal. 159 (1922).

VI.

THE ENERGY COMMISSION SHOULD NOT CONDITION THE DEPARTMENT'S APPLICATION FOR CERTIFICATION ON THE PAYMENT OF IN-LIEU TAXES AS REQUESTED IN THE COUNTY'S PROPOSED FINDINGS AND CONCLUSION.

Even if the Commission had authority to require the Department to pay "in-lieu" taxes, it should not require the payment of "in-lieu" taxes by the Department.

The Department has been negotiating with the County since it originally intervened in the Notice of Intention proceeding. The County publicly stated at that time that its major socio-economic concern was the effect of increased use of Bottle Rock Road. The Department in good faith negotiated an agreement with the County (Agreement R-50284, dated January 29, 1980), for the improvement of the road. Under the agreement the Department will pay all costs which include costs of "right of way acquisition, design, relocation, realignment and modification". The agreement provides for obtaining payment from other developers who subsequently use Bottle Rock Road, as the Department is upgrading the road to a level which will accommodate future development, which may not occur. Under the agreement, the Department will reimburse the County for its costs of processing an encroachment permit, up to $25,000, and for any other costs, including costs of reviewing plans, up to $15,000. The cost of reconstructing Bottle Rock Road under the agreement is estimated to be $1,125,000.

The Department is currently negotiating a memorandum of understanding with the County. While it has yet to be

executed due to minor disagreements in one area, the Department has committed to, among other things, submit its plans and specifications to the County for review prior to advertising of construction contracts, work cooperatively with the County in the operation of the plant, retrofit the powerplant under certain circumstances to improve the quality of the plants air emissions, provide an air monitoring network or study, provide an extensive stream flow measurement program, provide a surface water quality monitoring program, construct a dam and implement a creekbed enhancement program on Kelsey Creek, and reimburse the County for specified administrative costs incurred up to $25,000 per year.

The Department proposes to adequately mitigate any demonstrated adverse socio-economic impacts causedby its construction of Bottle Rock Powerplant. It has agreed to reconstruct Bottle Rock Road to meet the County's needs. It has worked with the County to develop a memorandum of understanding which provides a format for future cooperation (though unsigned, the Department has complied with its provision requiring submittal of plans and specifications). In short, we feel that the Department proposes to mitigate, to an acceptable level, the possible adverse socio-economic impacts to the fullest extent authorized by the laws which govern its actions. The Commission not only may not but should not condition the granting of the Department's Application as requested by the County.

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VII.

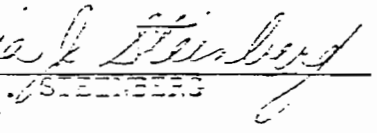
CONCLUSION

The Energy Commission, as a matter of law, cannot require the Department to pay "in-lieu" taxes as proposed by the County. Under the circumstances, neither should it.

DATED: September 11, 1980

Respectfully submitted,

State of California
Department of Water Resources



MARCIA J. STEINBERG
Attorney

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STATE OF CALIFORNIA

STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

In the Matter of: Application for Certification of the STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES' Bottle Rock Geothermal Project	Docket No. 79-AFC-4 STAFF BRIEF IN OPPOSITION TO LAKE COUNTY'S MOTION TO IMPOSE CONDITION ON CERTIFICATION

Respectfully submitted,

Dated: September 12, 1980.

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Original mailed from Sacramento
on Sept 12, 1980

STATE OF CALIFORNIA

STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

In the Matter of: Application for Certification of the STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES' Bottle Rock Geothermal Project.	Docket No. 79-AFC-4 STAFF BRIEF IN OPPOSITION TO LAKE COUNTY'S MOTION TO IMPOSE CONDITION ON CERTIFICATION

Intervenor County of Lake has moved the Energy Commission to impose as a condition of certification for the Bottle Rock facility that the Applicant Department of Water Resources (DWR) annually pay to the County of Lake a sum equal to the amount of property taxes which DWR would pay but for its tax-exempt status. (Proposed Findings and Conclusions of Lake County, August 4, 1980.) The Commission Staff opposes this motion. Staff submits that the Commission would exceed its authority in granting the motion. Even if the Commission has the power to impose the proposed condition on the certification, there is no reasonable connection between its regulatory functions and the proposed condition.

I

THE COMMISSION HAS NO AUTHORITY TO MODIFY DWR'S EXEMPTION FROM LOCAL PROPERTY TAXES.

Lake County concedes that, by provision of the California Constitution, DWR is not a taxable entity for purposes of Lake County's ad valorem property taxes. (Proposed Findings and Conclusions of Lake County, Finding 4.) In proposing

that DWR nevertheless be required to pay an amount exactly equal to the taxes it would otherwise have paid, Lake County effectively asks the Commission to abolish this constitutional exemption with respect to the Bottle Rock power plant. Nothing in the Warren-Alquist Act authorizes the Commission to take such an action.

The Commission certainly has broad powers with respect to energy conservation, development, and facility siting. It has, through its NOI and AFC proceedings, extensive supervision over power facility and site certification in the state. (Pub. Res. Code §§ 25500-25542.) It is authorized to compile land use, public safety, environmental, and other standards to be met in designing, siting, and operating facilities. (Pub. Res. Code § 25216.3(a).) It can adopt standards "to be met in designing or operating facilities to safeguard public health and safety, which may be different from or more stringent than those adopted by local, regional, or other state agencies. . . ." (Id.) It also has the power to specify conditions under which approval and continuing operation of a facility will be permitted. (Pub. Res. Code § 25216.5.) None of these sections, however, allows the Commission to fundamentally adjust the constitutionally established fiscal relations between state and local governmental entities.

The Legislature, in establishing the Energy Commission, was aware that local entities might incur financial burdens under the Warren-Alquist Act and mitigated certain aspects of that financial burden. For example, the Legislature provided for reimbursement of local entities' costs of reviewing applications upon request of the Commission. (Pub. Res. Code § 25538.)

While the Legislature clearly contemplated that state agencies might build power plants (Id., §§ 25116, 25101) it did not, in passing the Warren-Alquist Act, authorize the Commission to provide for the type of financial relief requested in this instance. Yet Lake County's argument assumes that the Legislature allowed the Commission to waive the state's tax exemption embodied in the California Constitution. This assumption should not be indulged.

II

A CONDITION MODIFYING DWR'S EXEMPTION FROM LOCAL PROPERTY TAXES BEARS NO RELATION TO THE COMMISSION'S REGULATORY FUNCTIONS

Even if the Commission may order the type of fiscal arrangement proposed by Lake County, it does not follow that the Commission could set such a condition in this instance.

A standard of reasonableness applies to conditions imposed by a regulatory agency. (Scrutton v. County of Sacramento (1969) 275 Cal.App.2d 412, 79 Cal.Rptr. 872, 879.) The reasonableness of a condition depends on whether the condition is related to the impacts of a proposed facility or furthers the policies of the statute or the agency conducting the proceeding. (Gong v. City of Fremont (1967) 250 Cal.App.2d 568, 58 Cal.Rptr. 664, 670.)

The proposed condition does not relate to any clear concerns of the Commission, such as the need for the facility, the efficient use of energy and resources, the maintenance of environmental quality, or the Applicant's ability to operate the facility safely and reliably. (See Pub. Res. Code §§ 25514.5, 25509.5,

25511.) Lake County's objection runs, not to the facility or to the Applicant, but to the Applicant's status as an entity of state government.

Lake County's Proposed Findings and Conclusions intimate that the proposed condition emanates from the finite nature of the geothermal resource in Lake County. Even assuming that the area has a limited capacity for commercial production of electricity, the proposed condition does not relate to mitigation of this effect. The Commission undoubtedly can impose conservation conditions on an Applicant, as in the Sundesert NOI. (Sundesert Final Report, Nov. 1977, pp. ii, 24-25; Decision, Feb. 15, 1978, App. A, Condition 1; Tr. II-12254.) But Lake County apparently proposes to use the money it would receive from DWR exactly like any other property tax revenues, not to mitigate any alleged impacts. (See Conclusion of Lake County's Proposed Findings and Conclusions.) Thus, Lake County has completely failed to establish any reasonable relationship between the proposed condition and the Bottle Rock plant. Without such a relationship the Commission cannot impose the proposed condition.

CONCLUSION

The Commission does not have authority to require payments by DWR in lieu of property taxes. Even if the Commission had such authority, Lake County has failed to demonstrate that such authority should be exercised in the circumstances of this case.

APPENDIX C

Applicant's Supplemental Filing
and General Counsel's Opinion
Regarding Confidential Treatment
of Proprietary Information.

STATE OF CALIFORNIA

ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

In the Matter of: Application for Certification of the State of California Department of Water Resources' Bottle Rock Geothermal Project.	DOCKET NO. 79-AFC-4 SUPPLEMENTAL FILING ON AIR QUALITY FINDINGS AND CONCLUSIONS

Applicant, Department of Water Resources, and Staff of the Energy Commission left open the issue of confidential treatment of proprietary information in their Joint Prehearing Conference Statement on Air Quality, Condition 1(a), EIC System, page 13.

The General Counsel issued an opinion in response to Paragraph 1 of the First Committee Hearing Order, concluding that Applicant's proprietary information could be dealt with under the applicable Commission regulations and that Applicant's information would thereby be protected. Applicant agrees with the General Counsel's conclusion. The following language for Condition 1(a) has been discussed with the Staff and is submitted to resolve the issue left open in the Joint Statement.

1. The Applicant shall provide the CEC Staff, for its review, design information on the following (Any such information which Applicant deems proprietary shall be submitted to the Executive Director pursuant to 20 Cal. Admin. Code Section 2505(d). Any information which is determined to be confidential

shall be kept confidential as provided for in 20 Cal. Admin. Code Section 2501 et seq.):

a. EIC Systems.

DATED: October 8, 1980

Respectfully submitted,

Marcia J. Steinberg

MARCIA J. STEINBERG
Staff Counsel

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79-AFC-4

STATE OF CALIFORNIA

ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

ENERGY COMMISSION
RECEIVED

SEP 5 1980

In the Matter of: Application for Certification of the State of California Department of Water Resources' Bottle Rock Geothermal Project.	Docket No. 79-AFC-4 GENERAL COUNSEL'S OPINION IN RESPONSE TO PARAGRAPH 1. OF FIRST COMMITTEE HEARING ORDER

QUESTION

The Committee has requested an opinion whether the Commission's regulations implementing the Public Records Act (Cal. Admin. Code, tit. 20, §§ 2501-2511) allow a public agency applicant in a siting case to have the same confidentiality treatment of its records as a private party applicant.

CONCLUSION

The regulations allow equal treatment of records of agencies and private parties so long as there is good cause for confidential treatment. The only difference between the two kinds of applicants is in the procedures to be followed in determining that confidential treatment will be allowed.

ANALYSIS

This problem apparently arose because the definition of "applicant" in section 2503(b)(5) refers to "a private third party" which in turn is defined in section 2503(b)(3) as not including state agencies. This led to the fear that

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on 9/5/80

state agencies were not to be granted the same protection for confidential documents as private third parties. In fact, however, the regulations clearly contemplate that records which other agencies keep confidential shall be obtainable by the Commission upon our agreement to give such records similar treatment. Section 2505(d) provides:

> "The Executive Director may, after consulting with the General Counsel, determine that a record not submitted by a private third party should be kept confidential. The determination shall be in writing and may be appealed to the Commission within 30 days."

Additionally, section 2507(c) allows the Executive Director to disclose confidential records to other agencies who agree to keep them confidential. Section 2507(c) also repeats the point that:

> "On behalf of the Commission the Executive Director may request and agree to maintain the confidentiality of other agencies' confidential records."

Thus the exclusion of state agencies from the definition of "applicant" was intended only to avoid requiring of other agencies the more formal application and determination procedures required for private parties in section 2505(a)-(c). Since such agencies are also subject to the Public Records Act and must, under that law, have already determined that their own confidential records are allowed confidential treatment, there is no need for the more formal procedure here at the Commission with respect to such records, and confidentiality can be insured by the less formal mechanism of an Executive Director's determination and agreement to

keep the records confidential, pursuant to sections 2505(d) and 2507(c).

Dated: September 5, 1980.

Respectfully submitted,

William M. Chamberlain

WILLIAM M. CHAMBERLAIN
General Counsel
California Energy Commission

APPENDIX D

Lake County Use Permit.

DOCKET
79-AFC-4
DATE:
RECD: AUG 18 1980

COUNTY OF LAKE

USE PERMIT

McCULLOCH BOTTLEROCK STEAMFIELD GEOTHERMAL PROJECT

Pursuant to the approval of the Lake County Board of Supervisors on February 19, 1980, there is hereby granted to McCulloch Geothermal Inc., 10880 Wilshire Boulevard, Los Angeles, CA., a Use Permit for the Cobb Valley area, for a maximum of ten additional wells to be drilled on three pads, the existing Francisco, existing Coleman and proposed Pad #3 as identified in the Final E.I.R., and for accessory access roads and pipelines, including three injection wells to be located in Sections 5 and 6 T11n., R8W, MDB&M, in accordance with the Lake County Ordinance Code.

The Board of Supervisors finds that the establishment, maintenance or operation of the use for which application is made will not under the circumstances of this particular case be detrimental to the health, safety, peace, morals, comfort and general welfare of persons residing or working in the neighborhood of such use, or be detrimental to the general welfare of the County and that the proposed use is not a trival action with no significant impact on the environment.

The Planning Commission has caused to be prepared an Environmental Impact Report on the subject of this application and has held public hearings thereon and has carefully considered this matter pursuant to the California Environmental Quality Act and the State E.I.R. Guidelines pertaining thereto, and pursuant to the Environmental Protection Guidelines of the County of Lake.

1. Approval is subject to the following terms and conditions:

1. The Use Permit shall be valid for a period of three (3) years from the date of approval; however, if the Use Permit is not used prior to February 19, 1983, it will become null and void, and the use may not proceed without the application for and approval of a new Use Permit. The Planning Commission may in its discretion approve time extensions.

2. The County reserves the right to inspect this project at any time after first attempting to notify the operator.

3. The Use Permit shall be reviewed by the Planning Commission at the end of eighteen (18) months and shall be subject to the following conditions:

A. TO PROTECT PLANT ASSOCIATIONS:

1. Specified pad, road, and borrow sites shall be evaluated by a qualified landscape architect, registered forester, plant ecologist or qualified person acceptable to the Planning Department and applicant, to determine which native plants should be replanted, which annual grasses shall be seeded and which non-native plants can be tolerantly sustained.

2. Top soil shall be stockpiled for later respreading over the disturbed areas prior to re-seeding.

3. When construction/drilling has been completed, revegation shall be programmed and shall commence in the fall following the construction. The revegetation program shall be directed by the landscape architect, registered forester, plant ecologist or other qualified person acceptable to the Planning Department and applicant.

4. The entire revegetation program shall be re-evaluated during the spring following initial

planting and, if deemed by the Planning Department to be unsuccessful, additional regevetation will be required in the immediately succeeding fall season.

5. Except for large stumps, vegetation removed during construction shall be chipped and respread when beneficial as determined by person in Section A-1, or burned under the permits required by the Lake County Air Pollution Control District. Stumps may be buried outside of engineered fill and embankments.

6. In order to protect riparian and fen areas, as well as other vegetation on the leasehold, access to the drillsites shall be restricted to existing roads and proposed roads as defined in the application.

7. Vegetation beyond the construction perimeter shall not be disturbed. The clearing limits for the pad shall be specified in the plans and specifications to be submitted for approval to the Planning Department.

B. TO PROTECT AGAINST EXCESSIVE SOIL EROSION, INDUCED LANDSLIDES AND SURFACE GEOLOGIC HAZARDS:

1. Plans for drill pads, steam transmission pipelines, sumps and access roads shall be prepared by a registered civil engineer with assistance from a registered engineering geologist. Topographic mapping by photogrammetric methods shall be used for design and be supplemented as necessary with ground surveys. Road, pipeline, and pad locations shall be staked on the ground and adjusted as necessary before completion of final plans. Plans shall include a separate drainage plan using five foot contour intervals and supporting calculations for culvert sizes using acceptable engineering methods. Plans shall show specific provisions for erosion protection along pipeline routes, at culverts and on cut and fill slopes. detailed specifications for construction should be prepared in a manner similar to applicable portions of "Forest Service General Provisions and Standard Specifications for Contruction of Roads and Bridges-1977" and "Regional Standard Specifications", a U.S.D.A. Forest Service. Plans, specifications and ground locations shall be approved by the Planning Department or their authorized representatives before starting construction, and shall also be approved by the Regional Water Quality Control Board prior to construction.

2. Drill pad and road fills shall be compacted to a minimum 90% relative compaction to minimize erosion. If significant erosion occurs as a result of any part of this project, applicant shall take prompt remedial action.

3. Filled slope banks shall not exceed a gradient of 2:1. Toes of all fills shall be stabilized with rock and gravel or keyed into stable soil and placed to reduce erosion potential to an absolute minimum on all fill slope banks. Revegetation of slopes shall be carried out as specified in Condition A. Unless approved by an engineering Geologist and Planning Department, cut slopes shall not exceed a gradient of 1½:1.

4. Subdrains shall be provided under all fills where natural drainage courses and seepage are evident.

5. No drill pad construction or access road shall be allowed on potentially active landslides, unless properly mitigated, subject to approval by the Planning Department.

6. Buffer zones of undisturbed vegetation shall be maintained 500 feet on either side of streams. No geothermal related construction shall take place within this buffer zone without specific approval from the Lake County Planning Commission. Roads crossing riparian areas shall be minimum safe widths.

7. A retaining levee of not less than eighteen (18) inches in height and three (3) feet in base thickness shall be placed on the perimeter of all fill areas including access road fills, pad site and reserve pit sites, to prevent storm runoff accumulation from random discharge.

8. Drainage plan to be submitted will distribute storm water runoff and channel it to existing natural waterways only to the extent that it will not increase water head to the point of unnatural channel abrasion. Energy dissipators and collection devices to reduce the erosion force of unnatural runoff will be required where determined by County or State Agency Representatives.

9. All grading activity shall be completed and all drainage structures shall be in place and operational prior to October 10 of any year. Grading and excavation activity may not be permitted during the consecutive period from October 10 to April 10. (It is understood that this is a general time frame. Extension beyond October 10 may be allowed by the Lake County Planning Director upon establishment of a suitable soil moisture specification for any stated activity).

10. Applicant shall agree to contract with the County of Lake for engineering and inspection services, as required, to a completion date agreed upon by the applicant and the County, to insure compliance with the above stated conditions. Such services shall be billed to the applicant and repayment by the applicant shall be deposited in the Lake County Geothermal Trust Fund.

11. In areas requiring removal of vegetation but no grading, root crowns shall be left intact so as to retard soil erosion.

C. ENVIRONMENTAL AND SAFETY PROTECTIONS:

1. The sump shall be designed by a registered civil engineer with assistance from a registered engineering geologist. Design of the sump fill shall be to a specification to withstand both static loads and dynamic loads (imposed by credible seismic events) with safety factors of 1.5 and 1.2 respectively. The sump shall be constructed of material compacted to minimum 95% relative compaction unless the Lake County Planning Director determines, based upon conclusive soil testing data, that a lesser compaction is adequate. The sump shall be lined with at least two feet of clay having a permeability not to exceed 1×10^{-6} cm./sec., or an equivalent impermeable membrane. Volume of the sump shall be sufficient to accommodate both the drilling mud and any reasonable amount of precipitation which could enter the sump.

2. The sump shall be operated in such a manner as to preclude overtopping of the sump. Three feet of free board shall be maintained at all times.

3. Applicant shall prepare a viable contingency plan for spills and emergency pumping of the sump in the event of a heavy, unexpected rainfall or if excessive geothermal fluids are encountered. The plan shall show who is responsible and what equipment and manpower is available to respond to such an emergency. The plan shall be submitted to the Lake County Planning Department prior to commencement of construction.

4. Applicant shall prepare a viable contingency plan for emergencies due to breaks or unexpected deformation of the pipeline or its supports. The plan shall show who is responsible and what equipment and manpower is available to respond to such an emergency. The plan shall be submitted to the Lake County Planning Department prior to commencement of testing or operations, and annually updated on anniversary of permits.

5. Prior to the removal of drilling equipment, sump fluids (both mud and supernatant liquids) shall be chemically analyzed, upon request from the Planning Department, for type and quatity of biologically sensitive materials, especially hazardous materials, heavy metals and acids. The chemical analysis shall be sent to the California Regional Water Quality Control Board and Lake County Planning Department for review. If said analysis does not indicate quantities in excess of allowable limits for either human or other important biological elements, especially those of the aquatic ecosystem, then sump materials shall be solidified, dried, mixed with native soil and buried. If hazardous or biologically sensitive materials are found, such materials shall be removed to a Class 2-1 or Class 1 disposal dump site as directed by the County or appropriate State Agency.

6. No hydrocarbon base cleaning agent, no waste oils or greases, and no liquid fuel shall intentionally be released directly onto the surface of a drill pad. All such liquids shall be contained and removed from the site. Any accidental discharge of the materials mentioned above shall be removed and properly disposed of by the applicant.

7. All unattended drilling equipment, well heads, sumps and ponds shall be protected from access by unauthorized persons by minimum 6 ft., locked, chain-link fencing.

8. Pipeline components which are exposed to ambient conditions at a temperature of 140 degrees fahrenhelt or higher, where accessible to human reach, shall be designed to mitigate against inadvertent human burn injury.

9. Sanitary and hand washing vacilities shall be provided at the drill site and as specified by the Lake County Health Department.

10. In the event of casing blowout or other uncontrolled venting, the applicant shall move immediately to control the vent. No more than two (2) days shall elapse from the date of the uncontrolled vent to the date of equipment relocation to secure it.

11. Well discharge shall be directed away from adjacent woody vegetation and populated areas and appropriate energy dissipators shall be used as required by the Planning Department.

12. All solid waste material shall be removed from the site. Upon completion of drilling operations, unless otherwise approved by Planning Department, all equipment and materials unnecessary to the operation of the completed well shall be removed within sixty (60) days of completion of the well.

13. Applicant shall comply with the requirements of the fire prevention practices and measures as may be prescribed by the California Division of Forestry and/or County of Lake.

14. Provision shall be made for adequate sccess by fire-fighting equipment to the site, and fire access maps shall be provided to the appropriate Fire District (s).

15. Lights in the drilling rig shall be shielded so as to minimize visual impact at night to the portion of Bottlerock Road from which the drilling mast is visible.

16. Applicant shall provide the Planning Department with a plan which details the equipment and procedures which will be employed during powerplant outages (stacking periods) and during maintenance venting. This plan shall include proposed hours during which planned maintenance venting will occur as well as projected time which will elapse between unscheduled power plant outages and the throttling back of wells to minimum bleed. The plan shall include personnel available for unscheduled outages and projected response time of those personnel.

17. Applicant shall submit for the Planning Commission's approval a traffic control and road maintenance plan for High Valley Road. This plan shall take into account the great increase in heavy truck traffic which will accompany full field development of the Bottlerock site. The plan shall suggest mitigations which will prevent or alleviate the concomitant increase in danger due to traffic accidents and damage to the road which may occur following development.

18. Pipeline routes and design must be approved by the Planning Department prior to construction.

19. Prior to any construction activities, the applicant shall provide to the Planning Department for its approval a complete plan of development, showing locations of wells, pads, sanitary facilities, temporary and permanent storage and construction areas and buildings and the means by which these areas will be protected from unauthorized entry.

D. TO PROTECT AGAINST SURFACE WATER DEGRADATION:

1. In order to preserve the hydrologic integrity of this leasehold area applicant shall obtain by right or purchase all water used in drilling process or dust control.

2. The equipment service and fuel transfer areas and the area occupied by the drilling rig shall drain into the sump.

3. All fluids produced during testing after the sump has been filled shall be containerized and removed to a Class 1 or Class 2-1 disposal site, if required by the Planning Department or State Agencies.

4. The applicant shall continue to monitor the surface water quality of Kelsey and High Valley Creeks as required by the McCulloch Francisco Use Permit, and shall coordinate this water quality monitoring program with the ongoing California Department of Water Resources Water Quality Monitoring Program, said coordination being subject to approval by the Planning Department. Yearly microfaunal studies shall be initiated at times and locations specified in the McCulloch Department of Water Resources Bottlerock Steam Field EIR. Sampling procedures and parameters shall conform to those procedures and parameters outlined in the section entitled "monitoring", on pages 123 and 124 of that EIR.

5. If the applicant elects to conduct or participate in a larger and more comprehensive water quality program, it can be substituted for the requirements of D4. Such a proposal must be submitted to and accepted by the Planning Department and begun prior to the commencement of construction activities.

E. TO PROTECT AIR QUALITY:

1. Applicant shall meet all regulations and standards set

by the Lake County Air Pollution Control District and utilize on a continuous basis the state of the art of H_2S technology. This Use Permit does not supersede the authority of said District in any way.

2. After completion of geothermal wells, the H_2S emissions during standby venting of steam shall be either abated to acceptable level per Air Pollution Control District rules and regulations or standby venting shall be curtained to that level necessary to attain emission limitations. Curtailment methods to be utilized shall include the shutting in of geothermal wells as publicly agreed to by the applicant.

3. Applicant shall minimize vehicular dust on unpaved roads by the use of water or other acceptable dust retardant.

4. Applicant shall provide accurate chemical analysis of the geothermal resource if it is encountered, when required by the Air Pollution Control District.

5. The analysis shall include accurate "wet chemistry" and gas chromatograph determinations. Heavy metals such as lead, chromium, arsenic, antimony, mercury and cadmium should be determined as well as substances such as radon, hydrogen sulfide, boron, manganese, methane, fluoride, ammonia and carbon dioxide. The analysis should also include pH. The chemical analysis will be used in future use permit consideration for geothermal development on the project leasehold. The analysis shall be sent to the Planning Department within 45 days of completion of the well.

6. Applicant shall enter into agreements with Department of Water Resources or other parties as necessary and provide a written commitment and preliminary design of abatement systems as described in a letter dated February 15, 1980 from Ronald Robie, Director Department of Water Resources, to Lake County Air Pollution Control District which is acceptable to the Lake County Air Pollution Control District prior to all construction.

F. TO PROTECT AGAINST NOISE EXPOSURE:

1. Applicant shall meet a noise standard of Ldn 55 db (A) with a 10 db penalty between the hours of 10 P.M. and 7 A.M. of the following day at residences.

2. If measurements by the Planning Department indicate a possible violation of F.1, a measurement of the source noise in an appropriate location in the immediate vicinity of the source shall be made to determine if the source noise is sufficient to cause the level measured at F.1 to exceed 55 Ldn using the inverse square law. This source measurement shall be an equivalent sound level (Leq) averaged over a 24 hour period.

3. These regulations shall be adopted until a noise control ordinance is approved by the Board of Supervisors. Applicant agrees that the Planning Commission shall have the right to substitute the conditions of a General Noise Control Ordinance for the conditions of this section when adopted by the Board of Supervisors. It is understood by the Planning Commission and applicant that mufflers of advance design will be required for almost all geothermal operations in order to meet these standards and that extraordinary mitigative techniques such as lead/vinyl barriers and the wrapping of the drill rigs may be necessary to meet the noise standards of Section F-1 and F-2.

4. It is stipulated that the Lake County Planning Department will be spot monitoring noise levels in the vicinity of the proposed land use and that findings resulting from said monitoring may require the applicant, his contractors or agents to provide continuous noise level monitorings and readings as may be directed by the Planning Department.

5. It is also stipulated that the Planning Department has jurisdiction over noise investigation procedures and enforcement.

6. If the Planning Department receives noise complaints, the hours of heavy truck traffic to and from the site may be restricted to the hours between daylight and sunset only; except in cases of emergency.

7. Drill pipes shall not be laid in bins between the hours of 8 P.M. and 7 A.M. the following day.

G. TO PROTECT ARCHAEOLOGICAL RESOURCES:

1. Archaeological sites identified on pages 125-127 of the McCulloch Department of Water Resources Bottlerock Steamfield EIR shall be preserved in their existing state. No excavation or disturbance by the applicant or his contractors shall be permitted at these archaeological sites unless mitigated, subject to approval by the Planning Department and Sonoma State University's Resources Facility.

H. TO CONTROL VISUAL IMPACTS:

1. The revegetation program shall be formulated to include consideration of the visual impacts created by geothermal development.

2. Pipelines shall be colored in such a manner as to provide maximum color compatability with the vegetation type tyrough which it is routed. The choice of the color of the pipeline shall be made by the revegetation program contractor. Changes in color shall be made along the pipeline if necessary to blend with the background.

3. On visual edges such as ridgelines, low profile design approaches shall be employed.

4. All pad/road/pipeline sites shall be placed in areas, other environmental and engineering conditions being met, in such a manner that existing vegetation and topography will provide maximum screening.

I. UPON WELL ABANDONMENT:

1. The applicant shall abandon any well in accord with the Division of Oil and Gas Regulations.

2. Applicant shall refill sump and grade pad to reasonably restore a natural ground contour.

3. Applicant shall remove all pipelines and supports not necessary for field operation.

4. Applicant shall revegetate the pad and sump areas with woody vegetation that can be tolerantly sustained in accord with recommendations of the revegetation consultant or the procedure given in Condition A-1.

J. RE-ENTRY OF PRODUCTION OR SUSPENDED WELL BORES:

1. Applicant may re-drill or otherwise re-enter the same well bore of any well authorized under this

K. SEVERABILITY:

If any section, subsection, sentence, clause or phrase of this permit is for any reason held by a court of competent jurisdiction to be invalid, such decision shall not affect the validity of the remaining portions of the use permit. The Board of Supervisors hereby declares that it would have passed this use permit and each section, subsection, sentence, clause and phrase hereof irrespective of the fact that any one or more sections, subsections, clauses or phrases are declared invalid.

II. IN GRANTING THIS USE PERMIT, THE LAKE COUNTY BOARD OF SUPERVISORS MAKES THE FOLLOWING FINDINGS:

A. That this Use Permit does not abridge or supersede the regulatory powers or permit requirements of any State or Federal Agency or any Special District or other Lake County Department or Division which may retain an advisory or regulatory function as specified by statute or ordinance, nor does this Use Permit grant any title or other real property solely to this applicant or his assigns.

B. That the granting of this Use Permit is in the general public interest and that environmental and performance parameters conditioning the proposed activity as specified in this Use Permit and as contained in that document entitled "Conditions, Procedures and Performance for Geothermal Regulations, County of Lake" now referenced and made a part hereof, will allow the proposed activity with adequate safeguards to the welfare of the people of Lake County at large and to the people residing in the vicinity of said activity.

C. That this Use Permit shall be subject to revocation or modification by the Board of Supervisors of Lake County if:

1. The Board finds that there has been non-compliance with any of the foregoing conditions or:

2. The Board finds that the use for which this Use Permit is granted is so exercised as to be substantially detrimental to the general public or to property in the vicinity of the use.

Any such revocation shall be taken pursuant to Section 21-84 of the Ordinance Code of the County of Lake.

D. Noise levels from drilling operations will be muffled and times of other operations limited so as not to constitute a public nuisance.

III. THE BOARD OF SUPERVISORS FURTHER DECLARES THAT:

A. This Use Permit may be modified or revoked if the Lake County Board of Supervisors finds that the use to which this permit is put is detrimental to the health, safety, morals, comfort and general welfare of the persons residing or working in the neighborhood of such use, or

If it is injurious or detrimental to property and improvements in the neighborhood or the general welfare of the County, or is a nuisance.

Date of Issuance:

GEORGE R. VOLKER
Planning Director

By:_____
Irene L. Brown, Secretary

ACCEPTANCE

I have read and understand the foregoing Use Permit and agree to each and every term and condition thereof.

Date:_____

_____
Owner or Authorized Agent

DP;lds

APPENDIX E

CEC Staff Compliance
Monitoring Report.

ENGINEERING AND ENVIRONMENTAL DIVISION
COMPLIANCE MONITORING REPORT
DWR BOTTLE ROCK

A. INTRODUCTION

This report has been prepared to partially fulfill the requirements of Public Resources Code Section 25532. The requirements set forth in this report are based entirely upon the Terms and Conditions of the CEC Certificate. The information basis for the administrative procedures in this report include prehearing conference statements, workshop discussions, hearing proceedings, findings and conclusions, testimony and other materials considered part of the power plant case record, and CEC adopted policy and procedures for compliance monitoring.

The report is divided into technical areas, and the applicable laws, ordinances, regulations, standards and agreements are listed for each. Requirements for compliance monitoring are divided into five phases: preconstruction, construction, preoperation, operation, and postoperation. For each requirement there is a discussion regarding the method of verification, procedures of enforcement, and filing or notification methods. All compliance verifications will be part of the public record and will be maintained by the California Energy Commission Docket Unit.

During the Application for Certification (AFC) AFC proceeding, a determination was made in each technical discipline regarding the necessity for postcertification activities. Some technical areas are not contained since no postcertification activities were identified by any party to the proceeding. This report contains those activities determined by the proceeding to be necessary to assure compliance with the applicable laws, ordinances, regulations, and standards.

The Compliance Monitoring Program for each power plant is managed by a Compliance Audit Manager who works within the CEC's Engineering and Environmental Division. The manager will be responsible for implementing the approved program after certification, maintaining compliance monitoring legal records for the program, ensuring that all aspects of the program are done in a timely manner, and will bring to the attention of the Commission any need for issue resolution. In cases of dispute, the Commission has final authority to resolve the dispute.

3. GENERAL NOTES

1. The California Energy Commission (CEC) shall be the responsible agency for compliance monitoring and enforcement. The CEC may delegate authority for review, approval, and enforcement of compliance monitoring submittals to other public agencies to the limit of those agencies' legal authority in lieu of the CEC's exclusive power to certify sites and related facilities. However, for purposes of exhaustion of administrative remedies, the Commission's procedures will constitute final administrative relief.

2. This document includes the laws, ordinances, standards, and conditions for designing, constructing, and operating the power plant and related facilities. This document additionally specifies actions, verifications, submittals, and approvals required by the Commission to assure that the facilities are designed, constructed, and operated in compliance with air and water quality, public health and safety, and such other laws, ordinances, and standards specified by the Commission in its written decision on the application.

3. This document applies to the "Project Area" which is defined herein as the plant site area and the transmission line right of way.

4. In the event that the utility and any person with delegated compliance authority determines, after reasonable effort on the part of both parties, that a conflict cannot be resolved, either party may petition the CEC to consider the conflict.

   The petition shall be filed with the Compliance Audit Manager (CAM). The CAM will review the petition and may:

   (a) Convene a worksnop to review the conflict and facilitate a resolution between all parties; or

   (b) Refer the conflict to the Executive Director with a written recommendation.

5. Any matter of noncompliance with terms of the certificate that comes to the attention of the CEC, is subject to review and can result in proceedings pursuant to CAC Title 20, Article 4, Sections 1230, et seq.

6. Any person may file a complaint with the Executive Director alleging a violation of statute, regulation, order or decision adopted, administered, or enforced by the CEC according to the requirements and procedures set forth in CAC Title 20 Article 4, Complaints and Investigations, Section 1230, et seq.

7. CEC's mailing address for all Compliance and Monitoring matters is:

   Compliance Audit Manager, File No. 79-AFC-4C
   California Energy Commission MS-2000
   1111 Howe Avenue
   Sacramento, California 95825

Note: The Compliance File Number is the AFC docket number with the letter "C" added to the end.

8. All compliance correspondence and materials to be delivered to CEC staff should be addressed to the staff via the Compliance Audit Manager (CAM) at the above address.

9. The utility and county Chief Building Official, if applicable, will maintain for the life of the project, files of all "As-Built" documents referenced in this report for the life of the project. CEC staff, upon reasonable notification, will have access to these files.

10. CEC will maintain as a public record:

    - All attestments pertaining to the fulfillment of legal requirements.

    - All documents relative to complaints filed with the CEC pursuant to Title 20 CAC, §§1230, et seq.

    - All documents relative to postcertification compliance monitoring proceedings brought before the Commissioners.

11. Any information which Applicant deems proprietary shall be submitted to the Executive Director pursuant to 20 Cal. Admin. Code Section 2505(d). Any information which is determined to be confidential shall be kept confidential as provided for in 20 Cal. Admin. Code Section 2501 et seq.

C. COMPLIANCE REQUIREMENTS

I. Air Quality/System Engineering

Will the construction and operation of the proposed DWR Bottle Rock Geothermal Project result in any adverse impacts to air quality?

A. Law

During normal plant operations, H_2S and total suspended particulates (TSP) emissions from a geothermal power plant are governed by the California ambient air quality standards for H_2S and TSP as well as LCAPCD New Source Review regulations and specific emissions limits for H_2S and TSP.

NSR Sections 602, 604, and 605

In general, District New Source Review regulations limit TSP and H_2S emissions from a single plant to a level that will not cause a violation of the ambient air quality standards from the plant alone or lead to a standard violation when plant impacts are added to likely background values of TSP or H_2S.

Base upon the LCAPCD's air quality analysis, emission limitations for H_2S will be 5 lbs/hr and this limitation has been made part of the CEC AFC Decision of the Bottle Rock Facility. This emission limitation shall be the criteria for examination of compliance of the facility for H_2S emissions.

Rule 421.2-A

Specific emission limitation limit H_2S emissions to 100 grams per gross megawatt from (gr/GMWhr) effective January 1, 1980. Subject to public hearings in 1987, this level could be reduced to 50 gr/GRWhr on January 1, 1990.

Rule 411

TSP emission values are limited to .2 grains/SCF or 40 lbs/hr maximum. In addition, rules identified on DOC pages 14 and 15 shall also apply.

Although the applicant is to be licensed upon the use of BACT as described in DOC Condition #2, DWR may use other means to comply provided the LCAPCD, ARB, and CEC are provided performance data indicating the other means are capable of achieving the same emissions limitations and reliability as those defined in Condition #2. Any such changes shall be decided at a properly noticed public hearing to be convened jointly by the LCAPCD and CEC, no later than 2 years prior to anticipated power plant operation at which the ARB and all intervenors shall be invited to participate. The LCAPCD concurrence upon any changes must be given.

The delegate agency is LCAPCD. DWR is charged with the responsibility of maintaining files for all reports or informational requirements outlined in the following monitoring programs. DWR shall inform LCAPCD, CEC, and the CAM of the location of the Central Repository for this information. DWR shall make these files available to LCAPCD, ARB, and CEC staff upon request.

1. Preconstruction Requirements

The following definitions will apply to the DWR Bottle Rock facility only:

Review--Review shall mean a 30 day period during which the control agency(s) shall assess and inform DWR of any apparent design deficiencies. LCAPCD shall notify DWR and CAM of any unacceptable items 30 days after receipt of information. The CAM shall notify the LCAPCD of any descrepencies the CEC staff has found. If no notification is given, DWR shall proceed on its project schedule, If notified of an apparent deficiency, DWR shall inform the agency(s) of its intention to provide additional information or modifications to correct the deficiency within 30 days. A projected schedule for this information shall also be provided.

Design Information--This information shall contain the equivalent level of detail as the Stretford system flow diagram (AFC figure 4.3-15, attached) submitted by PGandE in Geysers unit 18 AFC or as otherwise deemed appropraite by LCAPCD. This information shall also consist of a tabulation of associated equipment (e.g., pumps, blowers, tanks, etc.) and emission points and a list indicating numbers of components, capacities and redundancies. This information may be based upon final bid specifications.

Forty-five (45) days before procurement--This shall mean 45 days before specific equipment hardware is purchased. If design information is not provided 45 days in advance of procurement DWR shall have proceeded at its own risk.

1.1 DWR shall provide CAM, ARB, and LCAPCD, for their review, design information on the following:

a. EIC systems,

b. Stretford system,

c. Turbine by-pass,

d. Condensate Treatment (Hydrogen peroxide), and

e. Any performance information which is not proprietary on the condenser/sparger system acquired during shop testing and preoperation compliance and monitoring activities.

when this becomes available, but no later than 45 days before procurement of equipment.

1.2 DWR shall submit verification to the CAM, ARB, and LCAPCD that the initial EIC operators have been trained in accordance with EIC manufacturer recommendations.

1.3 DWR shall provide the results of vendor testing of EIC demister systems to the CAM, ARB, and LCAPCD for their review when they become available, but no later than 45 days before procurement of the demister equipment.

1.4 DWR shall provide the results of LCAPCD steam testing to the CAM and ARB when they become available, but in no case later than 45 days before procurement of H_2S abatement equipment.

1.5 DWR shall provide to the CAM and LCAPCD a summary description of the contractual relationship among DWR, the steam supplier and EIC Corporation.

1.6 DWR shall provide the CAM, ARB, and LCAPCD a summary of results of the Bechtel tests described in Finding 23 as soon as they become available, but in no case later than 45 days before procurement of equipment.

1.7 DWR shall provide the CAM, ARB, and LCAPCD a verification that it has received a performance (control efficiency) guarantee of 90 percent or better obtained from EIC laboratories for the EIC system.

a. Verification--DWR shall submit the information identified above to the appropraite agencies. LCAPCD shall review the information for adequacy.

b. Enforcement--LCAPCD shall notify the CAM and DWR in writing as soon as possible but no not less than 30 days after receipt of the data, of any unacceptable item or apparent deficiency. LCAPCD shall also identify, to DWR and the CAM, LCAPCDs recommendation to resolve the deficiency. The CAM shall notify the LCAPCD of any descrepencies the CEC staff has found.

c. Filings and Notifications--see Verification and Enforcement above.

2. Construction Requirements--None

3. Preoperational Requirements

DWR will submit a monitoring program at least 60 days prior to startup of the Bottle Rock Facility to LCAPCD, CAM, and ARB. H_2S emissions shall be monitored continuously by measuring total volume flow rates and H_2S concentrations.

In the event that acceptable continuous monitors are not available, DWR shall conduct testing no less than once every thirty (30) days to ensure the efficiencies of the H_2S abatement systems are being maintained. The testing procedure used to determine compliance must be approved by the LCAPCD. A log of such testing shall be maintained and be available to LCAPCD staff upon request.

Safe sampling access and ports to enable the LCAPCD to gather samples from the freshly treated condensate, cooling tower stack, treated gas from the Stretford system, and treated steam from the EIC system shall be provided.

3.1 The incoming steam (both upstream and downstream of EIC) to the power plant shall be analyzed quarterly and reported to the CAM and LCAPCD for hydrogen sulfide, radon-222 and its daughters, mercury, arsenic, silica, boron, benezene, ammonia, and total suspended solids for the first two years of operation. The results of these tests shall be reviewed by the LCAPCD to determine if thereafter annual testing will suffice. DWR may join with the steam supplier in performing such tests. Results of any tests performed upon the cooling tower sludge shall also be forwarded to the LCAPCD.

3.2 DWR shall develop a program to measure H_2S in the non-condensible gas flow upstream of the Stretford unit and in the off-gas vents of the Stretford unit to the atmosphere and to the cooling tower.

3.3 DWR shall develop a program to measure H_2S concentrations and liquid flow rate of the condensate upstream of the secondary abatement system and H_2S concentration downstream of the secondary abatement system prior to its release to cooling tower circulating water.

3.4 DWR and LCAPCD shall develop a program to monitor ambient H_2S and TSP concentrations and/or other pollutants (as identified in the DOC, Condition 23,) prior to and during operation of the Bottle Rock facility at locations to be mutually agreed upon. DWR shall submit the monitoring plant to ARB and CEC for approval at least 6 months prior to start up of the program.

3.5 A log of monitoring shall be maintained and be made available to LCAPCD staff upon request. The devices must have accuracies of +1 ppm, provide measurements at least every 15 minutes, and be accessable to LCAPCD staff. Flow rate measuring devices must have accuracies of +5 percent at 40 percent to 100 percent of the total flow rate and calibrations must be performed at least quarterly. Calibration records must be made available to LCAPCD staff upon request.

a. Verification--DWR shall submit the monitoring program plans to LCAPCD, CAM and ARB. LCAPCD shall review the plans for adequacy.

b. Enforcement--LCAPCD shall notify the CAM and DWR in writing, 30 days after submittal of the programs, of any unacceptable items. LCAPCD shall also identify to DWR and the CAM, LCAPCD recommendation to resolve the unacceptable items. The CAM shall notify the LCAPCD of any discrepancies the CEC staff has found.

c. Filings and Notifications--see Verification and Enforcement above.

4. Operational Requirements

4.1 Initial Compliance Determination

DWR shall submit for approval a detailed performance test plan and schedule to LCAPCD and the CAM for an emission limitation compliance test at least 60 days prior to test. In the event of plant disapproval, the LCAPCD will notify DWR and the CAM in writing within 30 days of receipt of plans and include recommendations on how to achieve approval. Results of monitoring program shall be submitted to LCAPCD, ARB, and the CAM as follows:

4.1.1 DWR shall provide a compliance report on the results of the monitoring program within 100 days after the facility has been declared operational. The report shall contain data obtained during the 75 day. The monitoring activity is to cover a minimum period of 75 days after the time the facility has been declared operationalmonitoring period. A minimum of 30 days of data (not necessarily consecutive days) at 90 - 100 percent rate power generation shall be required. The report shall contain as a minimum H_2S concentrations in the off-gas and freshly-treated condensate, power generation rates, a description of the abatement system's failures, if any, and data obtained in Items 3.1 thru 3.4 above.

4.1.2 If, during the first 75 days of monitoring described in Item a, 90 - 110 percent rated power has not been achieved for a minimum total equal to 30 days, monitoring shall continue and a second report is to be submitted within 15 days of obtaining 30 total days at 90 - 110 percent rated power. The second report shall include a summary statement of why 90 percent rated power was not being achieved, and a description of any corrective action taken.

4.1.3 Upon review of the information in Item(s) 4.1.1 and 4.1.2 the Air Pollution Control Officer of the LCAPCD shall present to DWR, the CAM, and ARB findings on conformity of air quality standard(s).

4.1.4 If the APCO finds that the facility has not met applicable emissions limitations, DWR shall prepare and submit its response to the Commission, ARB and LCAPCD. The response shall be submitted within 30 days after the submittal of the report(s) showing noncompliance. The response shall include a description of the mitigation measures or additional control(s) to be applied to the facility or other actions taken to meet the emission limitations. The report will also describe a schedule for implementation of these measures.

4.1.5 Upon review of the information in Item 4.1.4 the Commission, ARB, and LCAPCD shall jointly determine what actions DWR shall take to comply with emission limitations.

4.1.6 After the implementation of the approved mitigation measures, DWR shall conduct monitoring programs, described in Items 4.1.1 and 4.1.2. The LCAPCD shall perform the actions described in Item 4.1.3.

4.2 Continued Monitoring for Compaliance

4.2.1 The LCAPCD shall be notified within one hour following any power plant outage or malfunction resulting in emissions in excess of five (5) pounds per hour H_2S at (707) 263-2391, or a number to be provided by the LCAPCD. DWR shall maintain a log of power plant outages along with explanations for the outages and malfunctions. In the event that power plant outages recur because of equipment malfunctions that are not indicated by alarms, DWR shall retrofit alarms on the malfunctioning equipment as possible. The log shall be available for inspection upon the request of the staffs of the LCAPCD, ARB, CEC, and EPA.

4.2.2 The power plant abatement system shall have an operator on site at all times. The operator must be able to immediately take necessary corrective action in the event of power plant outage or equipment malfunction in order to meet the conditions of this Determination of Compliance. DWR shall provide a telephone number at which the Bottle Rock operator or a representative can be reached to ensure LCAPCD entry for inspection purposes within one (1) hour of notification.

If for considerations of safety, DWR can not comply with such a specific request, DWR shall forward in writing within one week a letter explaining the reasons entry could not be provided to LCAPCD staff, within one hour.

4.2.3 After obtaining a finding of conformance described in Item 4.1.3, DWR shall continue to monitor the H_2S emissions from the power plant and report on the status of compliance as required by LCAPCD, but not less than on a quarterly basis. In case of noncompliance, actions identified in Items 4.1.4, 4.1.5, and 4.1.6 will be required to return to a condition of compliance.

4.2.4 DWR shall, at the request of the LCAPCO, install, operate and maintain an on-site meteorological station capable of determining wind direction, wind speed, standard deviation of the direction, and temperature. Such data shall be furnished to the LCAPCO on a monthly basis in an hourly/day format and quarterly in a summary format acceptable to the LCAPCO.

4.2.5 DWR shall promptly fund reasonable studies or tests as required by the LCAPCO to ascertain the impact of DWR/Bottle Rock when operating, specifically at the residence located approximately 1,900 ft. east of the Francisco pad, should the resident in good faith file complaints with the LCAPCO indicating the air quality is worsening or becoming a nuisance or unhealthful as a result of Bottle Rock's operation. These studies shall include, but not be limited to, monitoring at the residence to determine H_2S levels and particulate or other components which are believed or known to be in geothermal steam, tracer tests or source tests. Such studies shall be approved by the LCAPCO prior to initiation. Reasonable mitigation steps shall be applied upon request of the LCAPCO to attempt to remedy any unlawful impacts caused by the DWR Bottle Rock power plant upon the residence.

4.2.6 Reports shall be issued qurrterly to the LCAPCO detailing: hours of operation; any periods for which abatement equipment malfunctioned and the action taken; chemicals utilized for treatment of condensate; periods of scheduled and unscheduled outages and the reasons for such outages; and summary of the output of continuous emissions monitors with explanations of any irregularities.

a. Verification--DWR shall submit the monitoring program plans to LCAPCO, CAM and ARB. LCAPCO shall review the plans for adequacy.

b. Enforcement--LCAPCO shall notify the CAM and DWR in writing, 30 days after submittal of the programs, of any unacceptable items. LCAPCO shall also identify to DWR and the CAM, LCAPCOs recommendation to resolve the unacceptable items. The CAM shall notify the LCAPCO of any discrepancies the CEC staff has found.

c. Filings and Notifications--see Verification and Enforcement above.

5. Postoperational Requirements--None.

II. HEALTH

Will the operation of the power plant result in adverse public or occupational health impacts? (See sections on Safety/Worker Safety, and Air Quality Monitoring Compliance for additional requirements related to health.)

A. Law--Radon-222: The laws pertaining to this radiological health issue are California Administrative Code Title 17, Section 30355 (concentration limits for radioactive effluents released to uncontrolled areas) and California Health and Safety Code Section 25607 (requirement for radiological monitoring): The California Department of Health Services Radiologic Health Section (DOHS/RHS) is the agency delegated responsibility for determining compliance with requirements.

1. Preconstruction Requirements--None.

2. Preoperation Requirements--None.

3. Construction Requirements--None.

4. Operating Requirements--DWR shall conduct quarterly sampling and analysis of radon-222 (^{222}Rn) concentrations in noncondensible gases entering the power plant. An outline of the current DOHS/RHS minimal requirements for monitoring and reporting on ^{222}Rn follows:

   - The facility must be sampled at least quarterly.

   - The sampling and analysis methods must be shown to be accurate by comparison to known standards supplied by an acceptable source (e.g., EPA). This "standard comparison" or "calibration" shall be run with each set of samples counted unless it is shown that the counting system is sufficiently stable. If calibration is unnecessary for each run, then calibration shall be required at least once per year.

   - Each power production unit must be sampled such that the instantaneous ^{222}Rn emission rate (Ci/sec) to the environment is accurately determined.

   This ^{222}Rn monitoring program will be conducted for at least the first three years of commercial operation. If monitoring results indicate that the ^{222}Rn release for the Bottle Rock facility is well within applicable standards, the program may be modified, reduced in scope, or eliminated provided the approval of RHS is obtained by DWR. DWR shall send a copy of the RHS approval to the CAM. As new information and techniques become available, with concurrence of DWR and RHS, changes may be made to the program or the methods employed in monitoring ^{222}Rn.

a. Verification--Approximately 10 percent of samples will be taken in duplicate with the duplicate sample sent to the DOHS Sanitation and Radiation Laboratory in Berkeley for cross-check analysis as a quality control on the DWR's laboratory analyses.

An annual report shall be prepared discussing each point above. All results shall include the standard deviation associated with the counting error. Sources of error in the sampling procedure and emission calculation shall be discussed.

The report shall also indicate the maximum dose due to emissions, calculated at the site boundary and to the resident nearest the location of maximum ^{222}Rn concentration, and the resultant expected population dose. (These dose calculations may follow a simplified methodology established by RHS).

b. Enforcement--DOHS/RHS is responsible for enforcing ^{222}Rn emission standards, if the ^{222}Rn emission standard is violated, DWR must inform the DOHS/RHS and CEC staff with special advisory reports. DWR will provide a written report to DOHS/RHS and CEC staff within 30 days of confirmation of an exceedance of 3.0 picoCurie per litre (pCi/l) ^{222}Rn in the cooling tower exhaust. If the ^{222}Rn concentrations exceed 6.0 pCi/l in the cooling tower exhaust, DWR will notify DOHS/RHS and CEC staff by telegram or telephone within 24 hours of the confirmation of the sample result. Confirmation includes the reanalysis of the sample by DWR or another qualified laboratory. Confirmation of sample results must be accomplished in the most expedient manner possible. The procedures used shall be the same as the normal analysis, but may include sending samples to DOHS/RHS and/or outside qualified laboratories for analysis. The confirmation of a sample should take less than five calendar days. DWR shall notify the CAM of corrective actions taken.

c. Filings and Notifications--DWR will provide the annual reports in a. above to DOHS/RHS and notify DOHS/RHS if specified advisory limits are exceeded (per b. above). Annual reports shall be maintained by DOHS/RHS and be available to the CEC staff and the public on request. DOHS/RHS shall report annually the results of ^{222}Rn monitoring program to the CAM. This report shall include at a minimum data concerning average and high values of ^{222}Rn emissions, and incidences of the 3.0 pCi/l and 6.0 pCi/l level exceedances.

5. Postoperation Requirements--None.

B. Law--Occupational Health and Safety: California Administrative Code, Title 8. (See sections on Worker Safety, and Handling and Storage of Hazardous, Toxic, and Flammable Materials.)

C. Air Quality Laws, Ordinances and Standards--(See section on Air Quality for regulated pollutants, particularly for H_2S).

D. Law--Monitoring Requirements: California Public Resources Code Section 25532. The following requirements are based on the Commission's responsibility to establish monitoring systems in order to assure that any facility certified by the Commission is constructed and is operating in compliance with air and water quality, public health and safety, and other applicable regulations, guidelines, and conditions adopted or established by the Commission or specified in the written decision on the application.

1. Preconstructinn Requirements--None.

2. Construction Requirements--None.

3. Preoperation Requirements--The need for an ambient air monitoring program is based upon the following:

   - There remains a lack of adequate baseline air quality data for use in determining public health impacts from geothermal development.

   - Ongoing and future development is expected to increase pollutant emissions; therefore, an analysis of existing ambient concentrations of pollutants should be made prior to the start of commercial operation of each power plant.

   DWR shall obtain baseline ambient air measurements for benzene, silica, mercury, arsenic, ammonia, and vanadium in accordance with the following requirements. These requirements may be accommodated as a part of any established regional data gathering program acceptable to LCAPCD and CEC staff.

   - Measurements shall be made in the populated areas in Cobb Valley downwind of the power plant, to be determined by LCAPCD, CEC staff, and DWR.

   - Sampling will be performed for at least one year prior to commercial operation.

   - Mercury will be measured in the particulate and vapor state.

   - Benzene will be measured in the vapor state.

   - Particulate measurements for silica, arsenic, mercury and vanadium will be made using a sampler for inhalable particulates. Elemental analyses may be performed using

particule induced X-ray emission (PIXE) techniques, atomic absorbtion or neutron activation techniques. Particulate samples will be collected every sixth day on the same schedule as the California Air Resources Board (CARB) statewide hi-vol particulate monitoring.

- o Mercury vapor measurements will be made by trapping the vapor and subsequent laboratory analysis. The schedule for mercury vapor sampling may differ from the particulate sampling depending on the exact method used.

- o Ammonia will be measured in the gaseous state concurrently with hydrogen sulfide. If a uniform ratio exists between ammonia and hydrogen sulfide, ambient hydrogen sulfide data can be used to estimate ammonia concentrations.

- o Ammonia measurements will be performed using a continuous No-NO_2 analyzer retrofitted with a high temperature converter designed for ammonia determination.

- o Measurement methods other than those specified above may be proposed and used by DWR as approved by CEC staff.

DWR and CEC staff, in consultation with CARB and DOHS, will agree upon significant levels of regulated and nonregulated pollutants applicable in the operational monitoring program. (Significant levels for regulated pollutants will be revised only if there is a change in federal or state Air Quality Standards.) A report prepared by CEC staff on the agreed upon levels for pollutants will be filed with the CAM.

a. Verification--A sampling plan consistent with the above sampling requirements will be prepared by DWR for approval by CEC staff, in consultation with the CARB, and DOHS/RHS before monitoring begins.

b. Enforcement--See General Section.

c. Filings and Notifications - Same as air quality (3.4).

4. Operational Requirements

There are four requirements related to public health protection in this section:

- o Initial Steam Sampling Program - Same as air quality (I.A.3.1). Continuation of the initial steam sampling program will depend upon:

  - The variation of the steam concentration of each pollutant;

  - The rate of emission of each pollutant; and

The development or status of ambient air quality standards or emission regulations for each pollutant.

If pollutant concentrations do not vary more than 20 percent, and rates of emissions are low (as compared to agreed-upon significant levels), monitoring will be terminated for specific pollutants unless new regulations have been adopted that require monitoring.

- o Mass Balance Measurements--In the second year of commercial operation, DWR shall perform a mass balance measurement for mercury and arsenic. DWR will prepare a report on the mass balance measurements and calculations.

- o Ambient Monitoring--DWR will initiate an ambient monitoring program for any pollutant sampled if plant emissions are great enough to cause significant ambient concentrati ons at populated areas as determined by LCAPCD, DOHS, and CEC staff. Significant ambient concentrations resulting from power plant operation will be 33 percent of any standard or agreed-upon significant level when the plant contribution is added to baseline ambient concentrations in existence before the power plant began operation.

- o New Well Steam Analysis--This analysis will be required when new steam supply wells are added to guarantee that combined power plant emission (the sum of baseline, power plant contributions, and new well contributions) do not change significantly (<u>+20 percent</u>). Methodology for this analysis will be the same as in the Initial Steam Sampling Program.

a. Verification

- o Initial Steam Sampling Program--Within 45 days after commencement of commercial operation, DWR shall perform the first quarterly steam analysis. DWR shall send the first and consecutive quarterly steam analyses and reports to DOHS and the CEC staff within 30 days after sampling. The quarterly steam sampling program will be conducted for one year. The results will be reviewed by the CEC staff to determine continuation of monitoring requirements, if any.

- o Mass Balance Measurements--DWR shall send a report on the Mass Balance Measurements and calculations to DOHS and CEC staff within 30 days after completing the measurements. The program results will be evaluated by CEC and DOHS to determine requirements, if any, for continuation of a mass balance measurement program.

III. CULTURAL RESOURCES

Does the proposed project impact cultural resources?

A. Law--(Federal)--National Historic Preservation Act of 1966, 16 U.S.C. 470 et seq., 36 CFR 800. In the absence of the CEC exclusive siting authority, the responsible agency is the State Historic Preservation Office.

1. Preconstruction Requirements

CA-LAK-605, 607, 608

The above-mentioned sites will be flagged, and construction personnel will be informed to avoid these sites.

CA-LAK-609

The existing fence around CA-LAK-609 will be maintained to prevent construction impacts.

CA-LAK-610

DWR will develop and carry out a systematic archaeological recovery program in consultation with CEC staff prior to any construction activity. Such a program will include at least the development of an archaeological research design, site mapping, and site transect for sampling. Further, the analysis and curation of artifacts recovered will be undertaken.

a. Verification--N.A.

b. Enforcement--N.A.

c. Notification--N.A.

2. Construction Requirements

DWR will arrange for the presence of a qualified archaeologist, during stripping of vegetation and top soil from the plan site and related facilities to advise DWR's Construction Department of the significance of any cultural resource which may be discovered. The archaeologist will conform to on-site safety procedures, as directed by the Resident Engineer. Further, all construction personnel will be instructed to avoid all contact with flagged or fenced sites and to not disturb any other historic or archaeological material.

a. Verification--If cultural resources are discovered during such land alteration activities, the operation in the potentially impacted area will cease until the archaeologist evaluates the significance of the resource.

IV. BIOLOGICAL RESOURCES

A. Law

- o Public Resources Code, Section 25003 specifies, "...in planning for future electrical generation...environmental protection... should be considered."
- o Endangered Species Act of 1973 and implementing regulations.
- o California Species Preservation Act of 1970, Fish and Game Code, Sections 900 - 903.
- o Native Plant Protection Fish and Game Code, Sections 1900 - 1904 and 1911.
- o Endangered Species Act of 1970, Fish and Game Code Sections 2050 - 2055.
- o Fully Protected Species, Fish and Game Code Sections 3511 (a, g) 4700 (e).
- o California Environmental Quality Act, Public Resources Code, Section 21000 et seq., states that "All agencies of the state government which regulate activities of private individuals, corporations and public agencies which are found to affect the quality of the environment, shall regulate such activities so that major consideration is given to preventing environmental damage."

  The delegated agency for legally protected species and fish and wildlife is the CDFG. CDFG also provides comments on species of special concern.

1. Preconstruction Requirements

   (a) DWR will have a qualified botanist identify and mark populations of Lomatium repostum in the vicinity of the power plant, transmission lines, and access roads. Construction crews will be alerted to avoid the marked populations.

   a. Verification--DWR's botanist will prepare a statement summarizing the results of the survey and indicating completion of the marking.

   b. Enforcement--The statement will be reviewed by staff of the CEC and CDFG. CEC and CDFG staffs will be allowed to make on-site inspections as necessary upon reasonable notice.

   c. Filings and Notifications--DWR will file the statement with CEC staff 30 days prior to initiation of construction activities in the vicinity of these communities.

2. Construction Requirements--None.

3. Preoperation Requirements--None.

4. Operation Requirements--None.

5. Postoperation Requirements--None.

B. Law

- o Fish and Game Code Sections 900 - 903, California species Preservation Act of 1970.

- o Public Resources Code Section 25003 states "...in planning for future electrical generation...environmental protection...should be considered."

- o California Environmental Quality Act, Public Resources Code Section 21000 et seq., states that "All agencies of the state government which regulate activities of private individuals, corporations and public agencies which are found to affect the quality of the environment, shall regulate such activities so that major consideration is given to preventing environmental damage."

- o Warren-Alquist Act, Public Resources Code Section 25527 states the Commission shall give greatest consideration to the protection of areas of critical environmental concern including, but not limited to, "unique and irreplaceable scientific, scenic and educational wildlife habitats...and areas under consideration by the state or the United States for wilderness or wildlife and game reserves."

1. Preconstruction Requirements--DWR shall comply with the following:

   (a) DWR will prepare a detailed biological resources mitigation plan which includes a field implementation plan and submit it to the CEC staff for review and approval. This plan will include the mitigation measures set forth in the AFC (pages V-108 to V-115), excluding brush piles, (V-102) and in the NOI (pages V-16 and 17 and VII-14 and 15).

   (b) DWR will have erosion controls for all disturbed areas in place prior to the first rain season following construction activities.

   (c) DWR will commence monitoring streams (four locations, see AFC, Page V-97) in order to establish baseline data prior to construction activities. (This requirement will be satisfied if the cooperative Geysers KGRA aquatic study has commenced by this time.)

(d) DWR will submit erosion control measures for earthmoving activities which are proposed for December, January, February and March. CEC staff will review the plan for adequacy and provide a determination within 15 days of receipt. The plan must be approved prior to allowing earthmoving activities during these months. If earthmoving activities are planned from November to April, temporary measures will be implemented to control erosion as set forth in the AFC (pages V-10 to V-104).

a. Verification-DWR will submit a statement to CEC staff indicating that it has complied with the above requirements. CEC staff will review this statement. Upon reasonable notice, CEC staff and CDFG staff will be allowed to make on-site inspections.

b. Enforcement--DWR will not begin construction activities until it has complied with these requirements. If the required submissions are found unacceptable, the staff of CEC, CDFG and DWR will meet to resolve the differences. If differences cannot be resolved by staff, they will be submitted to the Commissioners for resolution.

c. Filings and Notifications--DWR will submit the following to CEC staff:

(1) DWR will submit a detailed biological resources mitigation plan [see B.1.(a)]. This plan will be submitted to CEC staff for review by January 16, 1981. CEC staff will inform the Applicant by February 2, 1981, of the adequacy of the proposed plan.

(2) DWR will submit a statement to CEC staff prior to the rainy season following major earthmoving activities indicating that requirement B.1.(b) has been satisfied.

(3) DWR will submit a statement to CEC staff indicating that requirement B.1.(c) has been satisfied.

(4) DWR will submit an erosion control plan required in B.1.(d).

2. Construction Requirements

(a) DWR will continue monitoring the streams [see Preconstruction Requirement B.1.(c)].

(b) DWR will implement applicable measures of the approved detailed biological resources mitigation plan [see Preconstruction Requirements B.1.(a)].

(c) DWR will inspect, cut, and fill slopes and other disturbed areas for impacts from gully erosion and will take corrective action whenever necessary until permanent vegetation is established.

a. Verification

(1) DWR will submit an annual stream monitoring report to CEC staff for review (see 1.c.).

(2) DWR will submit annually a statement indicating compliance with the applicable requirements of the detailed biological resources mitigation plan.

(3) Upon reasonable notice, CEC staff and CDFG staff will be allowed access to the leasehold as necessary or appropriate.

b. Enforcment--If the requirements are not fulfilled, the Applicant and CEC staff will attempt to resolve any problems or differences. If differences cannot be resolved by staff, they will be taken before the Commission for resolution.

c. Filings and Notifications

(1) DWR will submit annual reports documenting the results of the stream monitoring to CEC staff for review [see B.1.(c)]. If significant sedimentation impacts are occurring, the staff of DWR, CEC and CDFG will meet to decide what further measures should be taken to correct or reverse these adverse impacts.

(2) DWR will submit a statement (including photographs when applicable) to CEC staff indicating which measures of the detailed biological resources mitigation plan have been implemented.

3. Preoperation Requirements

(a) DWR will begin visual observations and infrared aerial photography prior to power plant operation in order to establish a baseline against which cooling tower drift impacts will be evaluated.

(b) DWR will implement applicable measures of the approved detailed biological resources mitigation plan (see Preconstruction Requirements).

(c) DWR will continue monitoring for gully erosion and revegetation success [see B.2.(c)].

(d) DWR will continue stream monitoring [see B.1.(c)].

a. Verification

(1) DWR will submit a statement to CEC staff indicating that baseline observations for cooling tower drift have been made. CEC staff will review this statement.

(2) DWR will submit a statement indicating compliance with the applicable requirements of the detailed biological resources mitigation plan.

(3) DWR will submit an annual stream monitoring report [see B.1.(c)].

(4) DWR will submit an annual gully erosion and revegetation success monitoring report.

(5) CEC staff or CDFG staff will be allowed access to the leasehold as necessary or appropriate to verify compliance.

b. Enforcement--If the above requirements are not fulfilled, the DWR and CEC staff will attempt to resolve any problems or differences. If differences cannot be resolved by staff, they will be taken before the Commission for resolution.

c. Filings and Notifications

(1) DWR will submit the statement to CEC staff indicating that requirement B.3.(a) has been satisfied. The statement will identify where, when, and how the visual observations have been made and the results. The statement will also identify the area, date, time, and altitude coverage (scale) by the aerial photography.

(2) DWR will submit a statement (including photographs when applicable) to CEC staff indicating which mitigation measures and monitoring studies included in the detailed biological resources mitigation plan have been implemented.

(3) DWR will submit a statement indicating that requirement B.3.(c) has been satisfied.

(4) DWR will submit an annual stream monitoring report [see B.1.(c)].

4. Operation Requirements

(a) DWR will continue monitoring the potential drift impact area. Monitoring is required for at least the first three years of plant operation at which time DWR, CDFG, and CEC staff will meet to determine if further monitoring is necessary. If significant damage or changes

are observed, DWR, CDFG, and CEC staff will decide on further studies and/or necessary mitigation measures.

(b) If the CEC staff receives any submittals, complaints or other information from DWR, other agencies or the public that indicates one or more significant impacts are occurring on the leasehold, the Applicant and CEC staff will meet to determine what further measures shall be taken to correct or reverse these impacts.

(c) DWR will implement applicable measures of the approved detailed biological resources mitigation plan (see Preconstruction Requirements).

(d) DWR will continue stream monitoring for benthic organisms and water quality [see B.1.(c)].

(e) DWR will continue monitoring of gulley erosion and revegetation success on cut and fill slopes. These reports are required until mitigation has been permanently established on the cut and fill slopes. At that time DWR shall contact the CEC staff to consider termination of this aspect of the monitoring program.

(f) DWR shall submit to CEC staff one year prior to termination of power plant operation a detailed biological resources mitigation element as part of their power plant decommissioning plan.

a. Verification

(1) DWR will submit an annual drift monitoring report to the CEC staff for review.

(2) DWR will submit a statement indicating compliance with the applicable requirements of the detailed biological resources mitigation plan.

(3) DWR will submit an annual stream monitoring report (see 1.c.)

(4) DWR will submit an annual gully erosion and revegetation success monitoring report.

(5) CEC staff or CDFG staff will be allowed access to the leasehold as necessary or appropriate to verify compliance.

b. Enforcement--If the above requirements are not fulfilled, the Applicant and CEC staff will attempt to resolve any problems or differences. If differences cannot be resolved by staff, they will be taken before the Commission for resolution.

c. Filings and Notifications

(1) DWR will submit an annual report by January 1st of each year documenting the results of the previous year's observations and photography including an identification of any areas of stress or damage or changes in these areas. These photographs will be made available to the staff of CEC or CDFG upon request.

(2) DWR will submit a statement (including photographs when applicable) to CEC staff indicating requirement B.4.(c) has been satisfied.

(3) DWR will submit an annual stream monitoring report. these reports shall be required for the life of the project [see B.1.(c)].

(4) DWR will submit an annual gully erosion and revegetation success monitoring report.

(5) DWR will submit a detailed biological resources decommissioning plan to CEC staff for review and approval one year prior to termination of power plant operation.

5. Postoperation Requirements--DWR will implement the approved decommissioning plan.

a. Verification--DWR will submit a statement of compliance to CEC staff indicating they have complied with the approved decommissioning plan. Staff of CEC of CDFG will be allowed access to the leasehold as necessary or appropriate to verify compliance.

b. Enforcement--If compliance is not carried out, DWR, CDFG, and CEC staff will attempt to resolve any problems or differences. If differences cannot be resolved by staff they will be taken before the Commission for resolution.

c. Filings and Notifications--DWR will submit all information designated by the CEC staff in its approval of the decommissioning plan.

V. WATER QUALITY

Will the construction and operation of the facility result in adverse impacts on water quality of the area?

A. Law--California Administrative Code, Title 23, Subchapter 15--implementing Porter-Cologne Act with respect to waste disposal to land (see Section X WASTE MANAGEMENT).

Law--California Health and Safety Code, Division 20, Chapter 6.5; California Administrative Code, Title 22, Division 4, Section 66028, et seq.--in the absence of CEC exclusive siting authority, the responsible agency is the Department of Health Services (DOHS). (See Section X WASTE MANAGEMENT.)

Law--Porter Cologne Water Quality Control Act. California Administrative Code, Title 23, Section 13260--requiring any person discharging waste which could affect waters of the state to file a report of waste discharge, Section 13269--providing a conditional waiver to Section 13260.

Plan--Spill Contingency and Containment Plan, filed with Central Valley Regional Water Quality Control Board (CVRWQCB) by DWR pursuant to CAC, Title 23, Section 13269.

1. Preconstruction Requirements--None.

2. Construction Requirements--None.

3. Preoperation Requirements--None.

4. Operating Requirements--In the event of an accidental spill of condensate to a surface stream, DWR or steam field operator, pursuant to the above Order, will implement the monitoring program described in the "Spill Contingency and Containment Plan."

   a. Verification--DWR or the steam field operator will report a spill by telephone to the CVRWQCB as soon as possible and submit to the CVRWQCB a detailed written report within two weeks after the spill has occurred. This information and the monitoring reports will be available to CEC staff upon request.

   b. Enforcement--The CVRWQCB is responsible for enforcing the waste discharge requirements, Order No. 76-202, and the requirements of the spill contingency and containment plan.

   c. Filings and Notifications--Reports of spills are to be filed with the CVRWQCB by the utility or the steam field operator. These files are open to the public. The CVRWQCB shall notify the CAM of any potential enforcement actions.

5. Postoperation Requirements--None.

B. Law--California Porter-Cologne Water Quality Control Act--In lieu of filing a Report of Waste Discharge with the Central Valley Regional Water Quality Control Board, as required by Section 13260 of the Act, the utility may propose a spill containment system that will preclude discharges of condensate and other wastes off the plant site, a provision of Section 13269.

Plan--CVRWQCB Approved Spill Contingency Plan for Accidential Spills and Discharges. A contingency plan for cleanup and abatement of accidental spills by persons who discharge, store, or otherwise manage wastes or hazardous materials.

1. Preconstruction Requirements--None.

2. Construction Requirements--DWR will construct and maintain an impermeable retention-containment system to contain condensate and other on-site spills.

   a. Verification--DWR will maintain "as-built" drawings signed by a registered civil engineer for the spill containment system. Additionally, DWR shall provide documentation that the spill containment system liner is a material having a permeability of 1×10^{-5} cm/sec or less.

   b. Enforcement--See General Requirements.

   c. Filings and Notifications--DWR will maintain "as-built" drawings upon completion of construction activities. DWR will maintain these files for the life of the project. CEC staff will have access to DWR "as-built" files.

      (1) DWR shall notify the CAM of completion of items as required in Item A.

3. Preoperation Requirements--None.

4. Operating Requirements

   a. Verification--DWR shall submit a statement annually to the CVRWQCB which describes the condition of the spill containment basin, barrier, and pump-back system.

   b. Enforcement--See General Notes.

   c. Filings and Notifications--The statement shall be filed with the CVRWQCB by July 1.

5. Postoperation Requirements--None.

C. Standard--Water Quality Control Plan for the Sacramento River Basin, 5A, adopted by the CVRWQCB.

1. Preconstruction Requirements
   a. Verification--DWR shall file a notice with the CVRWQCB concerning the Transmission Line construction phase of the project.

   b. Enforcement--See General Notes.

   c. Filings and Notifications--DWR or its Transmission Line contractor shall provide the CVRWQCB with a Transmission Line route map (showing pads, towers, roads, etc.), and a construction phase schedule.

2. Construction Requirements--Vegetation removal and erosion/siltation contributing construction shall be minimized whenever possible, and DWR and its contractors shall comply with any waste discharge requirements, conditions, or monitoring the RWQCB may require.

   a. Verification--RWQCB routine inspections or response to complaints.

   b. Enforcement--See General Notes.

   c. Filings and Notifications--None.

3. Preoperation Requirements

   a. Verification--DWR shall prepare "as-built" drawings verifying compliance with the CVRWQCB accepted domestic waste disposal system for carrying the domestic wastes to the steam supplier's reinjection line.

   b. Enforcement--Changes to the CVRWQCB accepted domestic waste disposal system may require CVRWQCB approval.

   c. Filings and Notifications--DWR will: (1) file a copy of the "as-built" drawings with the CVRWQCB and (2) maintain a copy for the life of the project.

4. Operating Requirements--None.

5. Postoperation Requirements--None established.

VI. GEOTECHNICAL AND CIVIL ENGINEERING

Issue I

Will DWR's grading plans assure adequate site safety and comply with applicable excavation and grading terms and conditions of the certificate and Joint Prehearing Conference Statement of the Commission staff and applicant?

A. Ordinances

Uniform Building Code (1979), especially Chapters 3, 29, and 70 as adopted by Lake County Ordinance 970 and reviewed and applied by the CEC staff.

- o Chapter 3 sets forth requirements for permits and fees.
- o Chapter 29 sets forth requirements for excavation, fills, foundations, and retaining walls.
- o Chapter 70 sets forth requirements for site excavation and grading to safeguard life, limb, property, and public welfare.

The California Business and Professions Code, Section 7835, requires that engineering geologic reports be prepared and signed (or sealed) by a registered geologist or certified engineering geologist.

1. Preconstruction Requirements--DWR shall prepare and submit proposed grading plans for review by CEC staff and the Lake County Chief Building Official (CBO).

   a. Verification

      DWR's responsible registered civil engineer(s) and certified engineering geologist(s) shall verify and sign, that the proposed grading plans (including the accompanying reports) comply with the requirements set forth in the standards and documents referenced herein.

      The CBO shall review and comment on compliance of the proposed plans and specifications with requirements (primarily UBC76) of County Ordinances. CEC staff or its agent shall review DWR's proposed plans to determine compliance with any other requirements (including, but not limited to, those to mitigate adverse geologic conditions, soil erosion, and public health and safety).

      Upon submittal by DWR to the CAM of adequate quality assurance/quality control procedures for review and checking of grading plans, CEC staff may delegate to DWR responsibility for determination that proposed grading plans conform with UBC79 or other requirements of the certificate.

b. Enforcement

The CEC staff shall not accept DWR's proposed grading plans unless they are in substantial compliance with the criteria referenced herein.

If the proposed grading plan is not accepted by the CEC staff, it shall be modified by DWR for modification until substantial compliance is attained.

DWR shall not begin any excavation, grading, or other earthwork (other than that required for site exploration) until the proposed grading plans are accepted by CEC staff.

c. Filings and Notifications

At least 30 days prior to submittal of proposed grading plans, DWR shall notify the CAM that the plans will be filed on or about a certain date. At least 60 days prior to intended start of site excavation and grading, DWR will simultaneously submit proposed grading plans to the CAM and the CBO for review.

The CBO will, within 25 days of grading plan submitted, file concurrently with DWR and the CAM, a compliance letter containing the County's review comments.

The CAM will, within 50 days of receipt by CEC of DWR's proposed grading plans, file a compliance letter to notify DWR if the plans are acceptable to CEC staff, or, if not, of the CEC staff recommendations. Should the CAM fail to file the compliance letter within 50 days, DWR may deem its proposed grading plans acceptable to CEC staff.

2. Construction Requirements--Site excavation and grading shall comply with accepted grading plans and change orders.

a. Verification

(1) Substantial Changes. Should adverse site conditions warranting substantial changes* in facility design or other mitigation measures be discovered during site excavation and grading, DWR's evaluation of these conditions shall be signed and stamped by a certified engineering geologist, and any plans setting forth the substantial changes (change orders) shall be signed and stamped by the responsible registered civil engineer, who shall also verify that the change orders conform with the terms and conditions of the certificate.

*"Substantial changes" are those changes requiring an alteration in design concept and preparation of new design calculations. For example, thickening the cooling tower basin foundation by one foot would be considered a minor change. However, deepening of the foundation by two or three feet or redesign of the foundation as a network of pier foundations will be considered a substantial change.

CEC staff will review the proposed change orders and the geotechnical information on which they are based to determine that they conform with the terms and conditions of the certificate.

(2) Inspections. DWR will assign to the project one or more qualified geotechnical engineers to monitor compliance with design intent in geotechnical matters, to provide consultation during design and construction of the project, to make professional geotechnical judgements concerning actual site conditions and to recommend field changes to the responsible civil engineer. The responsibilities of the geotechnical engineer will include:

- o Review of earthwork quality control tests (including compaction tests);
- o Reporting to the responsible civil engineer any geologic conditions which differ from those predicted on the basis of the engineering and geology and soils engineering reports and any site earthwork which does not comply with the approved grading plans and change orders;
- o Preparation, in accordance with UBC 7015, of a soils grading report with his approval that the site is adequate for the intended use; and
- o Other duties (such as monitoring on-site or near-site groundwater levels) as appropriate.

If the geotechnical engineer is a certified engineering geologist, he may also be given the responsibilities listed in the following paragraph.

DWR will assign to the project a qualified certified engineering geologist who will be present as needed during all phases of site excavation and grading to evaluate site geologic conditions and geologic safety. Responsibilities of the engineering geologist will include:

- o Collection during site excavation and grading of information relative to site geology and geologic safety, including inspection and monitoring of drill logs and drill cores;
- o Preparation of a detailed permanent geologic map or log of all final excavated surfaces (including walls and floors of the foundations of the turbine generator building, cooling tower, and other permanent structures);

- o Reporting to the responsible civil or geotechnical engineer any geologic conditions which differ from those predicted in the Engineering Geology Report; and

- o Preparation, in accordance with requirements of UBC Section 7015, of a geologic grading report, with approval that the site is adequate for the intended use as affected by geologic conditions.

The CEC staff or its agents, may, upon reasonable notice to DWR, inspect the site at any time to verify conformance of site earthwork with approved plans and change orders and/or to evaluate newly discovered adverse site conditions.

Upon submittal by DWR to the CAM of adequate quality assurance/quality control procedures for inspectors of earthwork and grading, CEC staff may delegate to DWR responsibility for determining that such work conforms with UBC79 or other requirements of the certificate.

Should CEC staff delegate earthwork inspections to DWR, DWR will certify that any designated inspectors have the authority to: (a) stop excavation or grading in areas where adverse site conditions are discovered or where earthwork does not conform with the approved grading plans or change orders; and (b) require that changes or remedial work be performed to reestablish conformance or to achieve the design intent.

(3) Attestments of Compliance. DWR's responsible civil engineer shall certify on the As-graded plan that site earthwork was done in accordance with the final approved grading plan (including change orders) and satisfies the design intent.

The CEC staff may review the As-graded plans and accompanying soils grading report and geologic grading report and may conduct a final inspection of site earthwork to verify that site earthwork complies with the accepted final grading plan.

b. Enforcement

(1) Substantial Changes. DWR shall not proceed with any earthwork in the affected area (except that necessary to protect persons, property, and the environment) based on proposed change orders until the change orders are accepted by CEC staff.

(2) Inspections. If, upon inspection of site earthwork, DWR's quality control engineers or designated inspectors, or CEC staff or its agents discover nonconformance with approved

grading plans and change orders, they may require whatever changes or remedial work are necessary to reestablish conformance. Upon site evaluation of newly discovered adverse site conditions, they may recommend changes to ensure compliance with design intent.

If the CEC staff delegates inspection to DWR:

- o DWR's responsible inspector or geotechnical engineer shall halt any earthwork which does not conform with the approved grading plans and change orders, and shall notify the responsible civil engineer,
- o Changes or remedial work to reestablish compliance shall be performed as directed by the geotechnical engineer or the civil engineer, and
- o DWR's responsible engineering geologist shall halt site earthwork as necessary to adequately evaluate any adverse geologic conditions or hazards discovered during site excavation or grading.

DWR will not begin construction of any structure or foundation until notified by the CAM that site earthwork is acceptable to CEC staff.

c. Filings and Notifications

(1) Substantial Changes. Discovery of adverse site conditions which will warrant only minor changes in facility design or other mitigation measures need not be reported by DWR to the CAM. Such new geotechnical information will be reflected in the As-graded and As-built plans. DWR will maintain the As-built and As-graded files for the life of the project. CEC staff will have access to these files.

As soon as possible after DWR confirms the presence of any adverse site conditions which may require substantial changes, DWR's civil engineer or geotechnical engineer shall notify the CAM and shall submit to the CAM the new geotechnical information upon which the necessary change orders will be based.

As soon as possible after DWR has developed change orders for such hazardous or adverse geologic conditions, DWR will submit two copies of such change orders to the CAM for determination of their acceptability.

Unless DWR is notified otherwise within 30 days of receipt by CAM of any change order, DWR's proposed change orders will be deemed acceptable to CEC staff.

(2) Inspections. CEC staff, or its agents, shall give DWR reasonable notice (at least 24 hours) prior to unscheduled

inspections of site earthwork, unless an imminent hazard requires more immediate inspection.

DWR will notify the CAM when site earthwork is ready for final inspection and, upon completion of the rough grading work and at the final completion of the work, will file with the CAM, two copies of the As-graded plan, soils engineering report, and geologic grading report.

(3) Progress Reports and As-graded Plans. DWR will submit to the CAM a monthly summary of construction progress. Upon completion of site earthwork, DWR will prepare and maintain as a public record for the life of the project the As-graded plans. CEC staff and its agents shall have access to these filed documents.

(4) Attestments of Compliance. If the CAM does not notify the CBO otherwise within 10 days of submittal of the final As-graded plan and supplementary reports, the CBO may deem these documents and site earthwork acceptable to CEC staff.

3. Preoperation Requirements--None.

4. Operating Requirements--None.

5. Postoperation Requirements--DWR will prepare and submit a reclamation plan to the CEC staff to restore the site to its original condition as nearly as practicable at least six months prior to decommissioning of the facility.

Issue II

How can potentially adverse conditions predicted in shear zone materials in the cooling tower foundation be adequately evaluated and mitigated?

Ordinances

There are no directly applicable legal requirements; those cited for Geotechnical Issue I are made applicable by agreement with DWR [see Findings 1, Joint Prehearing Conference Statement of the Commission staff and the Applicant (JPCSCSA) dated August 22 and 27, 1980]. The requirements which the CEC staff and DWR have agreed upon to alleviate the concern expressed in Issue II are stated in the remainder of the JPCSCSA.

VII. SOILS EROSION PROTECTION

Has the DWR complied with standards controlling soil erosion and consequent sediment yield?

Standard--The Central Valley Basin Plan (based on requirements set forth in the Porter-Cologne Water Quality Control Act) of the Central Valley Regional Water Quality Control Board (CVRWQCB). The delegated agency is the CVRWQCB.

1. Preconstruction Requirements--None.

2. Construction Requirements--DWR will adhere to the requirements set forth in the Central Valley Basin Plan concerning maximum allowable cut and fill slopes and revegetation of disturbed areas.

   a. Verification--Site inspection may be performed by CVRWQCB prior to the operating phase. A statement verifying compliance with the standard will be prepared by DWR.

   b. Enforcement--Any CVRWQCB determination of noncompliance substantial enough to require corrective action will be reported to DWR with a copy sent to the CAM in writing. In the notification, CVRWQCB will recommend any actions they deem necessary to correct the noncompliance.

   c. Filings and Notifications--DWR will file a statement of compliance with CVRWQCB and the CAM prior to the operating phase.

3. Preoperation Requirements--None.

4. Operating Requirements--None.

5. Postoperation Requirements--None.

Agreement--DWR will construct and maintain a sediment containment system of terraced slopes and straw bail barriers until revegetation of cut and fill slopes is effective. DWR will annually quantify the sediments accumulated in the sedimentation containment system.

1. Preconstruction Requirements--None.

2. Construction Requirements--None.

3. Preoperation Requirements--None.

4. Operating Requirements--Annual quantification of sediments accumulated in the sedimentation containment system for the first three years after completion of the site preparation; after three years DWR may request CEC staff to review the need for additional reports.

   a. Verification--DWR shall annually monitor the sedimentation yield through measuring the amounts of sediments accumulated in the sedimentation containment system.

b. Enforcement--CVRWQCB determination of excess sedimentation may result in a cease and desist order to DWR.

c. Filings and Notifications--DWR will annually submit a report of sediment accumulated in the sediment containment system to CVRWQCB and CAM. CVRWQCB will notify the DWR in writing of any unacceptable sedimentation rates including any recommendations for corrective measures. A copy of any such notification will be sent to the CAM.

5. Postoperation Requirements--DWR will prepare and submit to CEC staff for review and approval, site restoration plans at least six months prior to decommissioning of the power plant.

VIII. STRUCTURAL ENGINEERING

Will the proposed power plant and related facilities be designed and constructed to ensure adequate safety and reliability and to comply with applicable laws, ordinances, standards, and other applicable criteria?

A. Laws, Ordinances, Standards, and Other Criteria

Laws

- Title 8, California Administrative Code, adopting American Society of Mechanical Engineers' Boiler and Pressure Vessel Code (ASME BPV Code).
- Title 24, California Administrative Code, adopting current edition of Uniform Building Code (UBC) as minimum legal building standards. UBC 79 is currently scheduled for adoption.
- Chapter 7, Division 3, Business and Professions Code requiring state registration to practice as a Civil Engineer or Structural Engineer in California.

Ordinances

- Lake County Ordinance 970 adopting (with appropriate additions or deletions) UBC 76 or equivalent building standard as deemed applicable by the Commission.

Standards

- Uniform Building Code, 1979 Edition (UBC 79)
- American Society of Mechanical Engineers' Boiler and Pressure Vessel Code.
- American National Standards Institute, "B 31.1 Power Piping Code."
- American Concrete Institute (ACI), "Building Code Requirements for Reinforced Concrete" (ACI 318-77).
- ACI "Building Code Requirements for Structural Plain Concrete" (ACI 322-72).
- ACI, "Commentary on Building Code Requirements for Reinforced Concrete" (ACI 318C-77).
- American Institute of Steel Construction (AISC), "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings" (AISC SDFESS 78).

- o AISC, "Commentary on the Specifications of the Design, Fabrication, and Erection of Structural Steel for Buildings" (AISC CSDFESS 78).

- o AISC, "Specification for Structural Joists Using ASTM A325 or A490 Bolts," April 1978 (AISC SST 78).

- o American Welding Society, "Structural Welding Code AWS D1.1-179" (AWS D1-79).

- o American Welding Society AWS D12.1-75, "Reinforcing Steel Welding Code."

- o "National Design Specification for Stress-Grade Lumber and Fastenings, 1977" (NDS 77).

- o "Timber Construction Standards," AITC-100, American Institute of Timber Construction, 1972.

- o American Iron and Steel Institute (AISI), "Specifications for the Design of Light Gauge Cold-Formed Steel Structural Members" (AISI SDLCFSS).

- o Steel Joist Institute, "Standard Specifications and Load Tables" (SJI SSLT).

- o American Assoication of State Highway and Transportation Officials, "Standard Specifications for Highway Bridges," 1977 Edition (AASHTO BRIDGE 77).

- o Cooling Tower Institute, "CTI Code Tower, Standard Specifications for the Design of Cooling Tower with Douglas Fir Lumber," October 1974 (CTI).

- o Structural Engineers Association of California (SEAOC), "Recommended Lateral Force Requirements," 1975, Recommendations and Commentary (SEAOC Recommendations and Commentary).

- o Departments of the Army (TM 5-009-10), the Navy, and the Air Force, "Seismic Design for Buildings," Section 9 excepting subsecton 9-061, April 1973.

Other Criteria

- o DWR will design and construct the power plant and its related facilities in accordance with:

  a. DWR Bottle Rock AFC, Section IV.D. (entitled, "Seismic Performance Criteria," revised May 22, 1980), Appendix A (Part III, entitled, "Structural Design and Construction Policy," revised May 22, 1980, and Appendix B (entitled, "A Report on Geysers Power Plants," by Dr. Haresh C. Shah, dated May 1980).

b. Applicant's responses (dated November 5, 1979) to Staff Interrogatories.

c. Record of telephone conversation, Gaylon Lee (CEC) and Dale Martfeld (DWR), July 21, 1980.

d. Applicable Findings and Conclusions regarding Structural Engineering of the Joint Prehearing Conference Statement of the Commission Staff and the Applicant dated August 29, 1980.

d. Applicable Terms and Conditions of the Certificate.

- DWR will use the Applied Technology Council "Tentative Provisions for the Development of Seismic Regulation for Buildings" (NBS-SP-510) as a guide in the design of the power plant and related facilities.

  In the event that UBC 79 is not adopted by the state (under Title 24 CAC) prior to construction, the Applicant will demonstrate that facility design conforms with the requirements of UBC 1976.

- In the case of discrepancies between criteria set forth in any of the laws, ordinances, standards, or criteria referenced herein, the utility will use the highest criteria in the final design and construction of the power plant and related facilities.

1. Preconstruction Requirements--DWR shall prepare and submit proposed final design documents (plans and specifications) for review by CEC staff and by Lake County CBO.

   a. Verification

      DWR's design engineer(s) shall sign and/or stamp all proposed final plans* and specifications, and shall certify in writing that to his personal knowledge:

      - The proposed final plans and specifications are consistent with the applicable referenced criteria and with any other applicable terms and conditions of the certificate, and were developed using design criteria and methods accepted by CEC staff, and

      - The utility's procurement specifications for components purchased from a vendor, comply with the referenced criteria and with any other applicable terms and conditions of the certificate.

*Final plans are defined as the plans upon which construction will be based (e.g., used for bid purposes).

For the Turbine/Generator Building, Turbine/Generator Pedestal, Cooling Tower, and Stretford Absorber Columns, DWR will clearly demonstrate through design calculations and drawings that the proposed final plans and specifications are based on and conform with design criteria and methods required by the certificate or that any nonconformance is justified.

The Lake County CBO shall review and comment on compliance of proposed plans and specifications with requirements (primarily UBC 76) of County Ordinance 970. The CEC staff or its agent shall review DWR's proposed design criteria and methods, preliminary and final plans and specifications, and upon request, may review proposed procurement specifications to determine that the proposed design or design approach conforms with terms and conditions of the certificate (other than County requirement) or, of not, that any nonconformance is justified.

Upon submittal by DWR to the CAM of adequate quality assurance/quality control procedures for review and checking of final design plans and specifications for the proposed structure and equipment, CEC staff may delegate to DWR responsibility for determining that the proposed final plans and specifications comply with UBC 79 or other requirements of the certificate.

b. Enforcement

If the utility's proposed design criteria or methods, final plans and specifications, and procurement specifications are not acceptable to the CEC staff, the design documents shall be modified by DWR until substantial compliance is attained.

The utility shall not begin construction of any structure or foundation for which final plans and specification have not been accepted by CEC.

c. Filings and Notifications

At least 30 days prior to submittal of any design documents, DWR will notify the CBO and CAM of the intended submittal date.

DWR will furnish two sets of preliminary plans and specifications to both the CEC and to the Lake County Chief Building Official (CBO) for review and comment concurrently with the Applicant's staff review process.

DWR will simultaneously submit two complete sets of final structural designs plans and specifications for each structure and structure foundation to the CAM and CBO at least 75 days prior to the intended date of bid opening.

The final plans and specifications will reflect the inclusions of approved criteria, assumptions, and methods used to develop the design, and for the Turbine-Generator Building, Cooling Tower, and Stretford Absorber Column, shall include design calculations.

The CBO will within 50 days of submittal of both preliminary and final plans and specifications by DWR, file concurrently with DWR and the CAM, a compliance letter containing the county's review comments.

The CAM will, within 70 days of receipt by CEC of DWR's proposed final plans and specification, file a compliance letter to notify DWR if the proposed plans and specifications are acceptable to CEC staff or, if not, what changes are recommended by CEC staff. Should the CAM fail to file a compliance letter within 70 days, DWR may deem its proposed final plans and specifications acceptable to CEC staff.

2. Construction Requirements--The power plant and related facilities will be constructed in accordance with accepted final plans, specifications, and change orders for substantial changes.

   a. Verification

   Should DWR propose substantial changes (as defined under Geotechnical and Civil Engineering) in facility design, the proposed substantially changed plans and specifications (change orders) shall be signed and/or stamped by the responsible design engineer who shall also certify that the proposed change orders conform with the requirements set forth or referenced herein and with any other terms and conditions of the certificate. Any nonconformance shall be justified by the utility.

   The CEC staff or its agent will review the proposed change orders to determine that they conform with the requirements; or, if not, that any nonconformance is justified.

   DWR will provide, through its Construction Office, a staff of field engineers and inspectors to monitor conformance with the accepted final plans, specifications, and change orders. These field engineers and/or inspectors will be present on site at all time to monitor construction activities.

   Upon submittal by DWR to the CAM of adequate quality assurance, quality control procedures for inspection of construction work, CEC staff may delegate to DWR responsibility for determining that construction work conforms with UBC 79 or other requirements of the certificate.

Should the CEC delegate responsibility for inspections to DWR, DWR shall certify that the designated inspectors have the authority to:

- o Stop construction work which does not conform with approved plans, specifications, and change orders;
- o Require changes or remedial work to reestablish conformance; and
- o Report substantial nonconformance to the CAM and CBO as soon as discovered.

CEC staff, or its agent, may upon reasonable notice, inspect the construction at any time to ensure that construction conforms to the accepted final plans, specifications, and substantial change orders.

Should DWR proposed substantial corrective measures for any nonconforming construction work, DWR's responsible civil engineer shall sign and/or stamp the proposed corrective plan and specifications shall certify that they conform with the applicable criteria. Any nonconformance shall be justified by DWR.

Any proposed substantial corrective measures shall be reviewed by the CBO and CEC staff or its agent to determine that they conform with the applicable criteria or with the design intent.

Upon request by DWR's responsible engineer, select fabricated materials shall be inspected for compliance with contract specifications, either in the suppliers' shops or on-site, by the utility's Engineering Quality Control Inspection Group. The test requirements shall be described in DWR's contract specifications or referenced standards.

The utility's responsibility civil engineer shall certify in writing to the CAM that the finished work for each major structure or component is accurately depicted in the As-built plans and that it conforms with accepted final plans, specifications, and change orders.

b. Enforcement

The utility shall not begin any construction based on proposed change orders or corrective measures unless these design documents have been accepted by CEC staff.

If, upon inspection of construction work the utility's quality control engineers, designated inspectors, CEC staff, or its agent discover that the work is in substantial nonconformance with the approved plans, specifications, and

change orders; the discoverer will immediately request that the construction work be stopped and notify the CAM.

If, upon inspection of construction work any of the utility's quality control engineers or inspectors discover minor nonconformance with the approved plans, specifications, and change orders; he shall halt construction work and require whatever changes or remedial work is required to reestablish conformance. The CAM need not be notified of or approve these changes; the corrective work shall be reflected in the As-built plans and specifications.

Upon notification by DWR of completed construction for each major structure or component, CEC staff or its agent may perform final site inspection to determine that the finished work is accurately represented by the As-built plans and specifications and conforms with the approved final plans, specifications, and change orders.

c. Filings and Notifications

At least 15 days prior to submitting a proposed change order which substantially revises approved final plans and specifications, DWR shall notify the CAM of its intent to submit such change orders.

If substantial nonconforming work is discovered by any of DWR's quality control engineers or inspectors, designated inspectors, or by CEC staff or its agent; the discoverer will immediately notify the CAM of the nonconformance.

At least 30 days prior to intended start of construction based on a proposed change order or corrective measure, the utility will submit at least 2 copies of such change order or corrective measure to the CAM for review.

The utility's proposed change order or corrective measure will be deemed approved unless the CAM notifies the utility otherwise within 30 days of receipt by CEC.

A monthly summary of construction progress will be submitted to the CAM of construction by DWR.

DWR will notify the CAM upon completion of each major structure or component.

The following will be established and maintained as public records on file at DWR:

- o A summary of concrete strength tests;
- o Copies of concrete pour sign-off sheets;
- o Bolt torque inspection reports;

- o Weld (yield) inspection sheets; and
- o As-built drawings for the construction of civil and architectural work (changes approved by the CAM shall be identified on the As-built drawings).

CEC staff and its agents shall have access to these filed documents.

3. Preoperation Requirements--None.

4. Operating Requirements--Modifications to the facility after operation has commenced which would violate the laws and standards in Section A above is considered a major change and requires CEC approval before the change is made.

   a. Verification

      The utility will file engineering descriptions of intended major changes with the CAM. Verification as in Construction above.

   b. Enforcement

      Same as Construction above. Inspections can be delegated to the utility as provided in Section 305, Chapter 3 of the UBC.

   c. Filings and Notifications

      Same as Construction above.

5. Postoperation Requirements--None determined.

IX. WASTE MANAGEMENT

Will DWR comply with requirements for handling and disposing of construction wastes and wastes generated by the cooling towers, air pollution abatement equipment and other sources? Will DWR comply with requirements for recovering feasibly recoverable wastes?

A. Law--California Health and Safety Code, Division 20, Chapter 6.5, "Hazardous Wastes."

Regulations--California Administrative Code, Title 22, Division 4, Chapter 0, "Minimum Standards for Management of Hazardous and extremely Hazardous Wastes."

In the absence of CEC exclusive siting authority, the responsible agency is the California State Department of Health Services (DOHS).

Law--Porter Cologne Water Quality Control Act. California Administrative Code, Title 23, Section 13260 (requiring any person discharging waste which could affect waters of the state to file a report of waste discharge).

Regulations--California Administrative Code, Title 24, Subchapter 15 (implementing Porter-Cologne Act with respect to waste disposal to land). In the absence of CEC exclusive siting authority, the responsible agency is the Central Valley Regional Water Quality Control Board.

1. Preconstruction Requirements--None.

2. Construction Requirements--DWR shall inform the CAM and Solid Waste Management Board (SWMB) of the disposal option selected for construction wastes generated.

3. Preoperation Requirements--Ensure availability of Class II-1 solid waste disposal sites approved for geothermal wastes.

   a. Verification--Completed Waste Discharge Requirements for Geothermal, Inc. (Middletown site) and I.T. Corporation (Kelseyville site) were adopted by the Central Valley Regional Water Quality Control Board on August 27, 1976, and September 22, 1978, respectively. These sites are approved for disposal of drilling mud, petroleum fractions, geothermal condensates or brines, and geothermal power plant wastes from hydrogen sulfide removal equipment.

   b. Enforcement--DOHS, Hazardous Materials Management Section can inspect hazardous waste disposal facilities, and will enforce the law and regulations applicable to hazardous waste facilities.

   c. Filings and Notifications--None.

4. Operating Requirements--Hazardous waste haulers' manifests will be submitted monthly by the hazardous waste producer to the State Department of Health Services (DOHS), Hazardous Materials Management Section, whenever hazardous wastes (cooling tower sludge, sulfur, etc.) are hauled from the plant and disposed of at a Class II-1 or other solid waste disposal site.

   a. Verification--Data from the manifests will be put into a DOHS computer and can be cross-checked if necessary. This data will be available to CEC staff upon request.

   b. Enforcement--Illegal dumping of wastes from the plant site will be determined by the DOHS or the Central Valley Regional Water Quality Control Board (CVRWQCB) or appropriate board. DOHS will continue to have authority over the waste hauler, and DOHS and the CVRWQCB will have authority over the disposal site operator. Any DOHS or CVRWQCB proceeding or action that could affect disposal of waste generated by Bottle Rock will be reported to the CEC staff by DOHS or the CVRWQCB.

   c. Filings and Notifications--Hazardous waste haulers' manifests are to be submitted by the waste producer, and disposal site operator, monthly, to the DOHS. Monitoring programs are submitted by the disposal site operator to the CVRWQCB or appropriate board.

B. Law--California Health and Safety Code, Division 20, Chapter 6.5; Regulations. California Administrative Code, Title 22, Division 4 Requirements for Storage, Handling, and Disposal of Hazardous Wastes. The responsible agency is the Department of Health Services (DOHS).

   1. Preconstruction Requirements--None

   2. Construction Requirements--None.

   3. Preoperation Requirements--If DWR will operate a hazardous waste facility (i.e., storage over 60 days or disposal of hazardous wastes, including Stretford sulfur effluent) they must obtain a DOHS determination that the requirements of a Hazardous Waste Facility Permit are met.

      a. Verification--The DOHS will review any permit application to assure that DWR has satisfactorily complied with DOHS requirements.

      b. Enforcement--If DWR does not comply with DOHS requirements, DOHS will notify the CAM.

      c. Filings and Notifications--The in-lieu application will be filed with the DOHS. DOHS will notify the CAM when all requirements have been met.

4. Operating Requirements--Monitoring requirements for a hazardous waste facility depend on the conditions of the DOHS determination issued.

5. Postoperation Requirements--Same as Operating Requirements.

X. SAFETY/WORKER SAFETY

Has DWR adequately provided measures and procedures to ensure the safety and health of the construction workers and plant personnel?

A. Law--California Administrative Code, Title 8, Industrial Relations, Chapter 4. Requirement for accident prevention program.

1. Preconstruction Requirements--None.

2. Construction Requirements--

a. Verification--DOSH will conduct inspections upon receipt of a complaint.

b. Enforcement--DOSH will investigate complaints and will determine and take action on what penalties shall be imposed and what corrective actions will be taken.

c. Filings and Notifications--DOSH will notify the CAM in the event of a violation that could involve DOSH action that would affect the construction schedule.

3. Preoperation Requirements--DWR shall request the state CAL/OSHA Consultation Service to review sections of the power plant accident prevention program for conformance with the requirement of Title 8 CAC, Section 3203. These sections refer to chemical handling and storage, and include provisions for hazardous materials and airborne contaminant exposure based on Section 5155 of Title 8 CAC. In addition, all other sections of the accident prevention program shall be reviewed by CAL/OSHA Consultation Service or CAL/DOSH to verify compliance with the requirements of Title 8 CAC, Section 3203.

a. Verification--DOSH will verify conformance with Title 8, CAC through on-site inspection.

b. Enforcement--DOSH will issue corrective orders if abnormalities are found during site inspections.

c. Filings and Notifications--DWR shall submit to the CAM, not later than 150 days prior to commencement of operation of Bottle Rock, a letter from the CAL/OSHA Consultation Service verifying the review specified above, and a letter from CAL/OSHA Consultation Service or CAL/OSHA verifying compliance with the requirements of Section 3203 of Title 8, CAC. DOSH shall notify the CAM in writing if a violation occurs that could result in delay in facility operation.

4. Operating Requirements--DWR will ensure compliance with provisions of the "Accident Prevention Program." (See 3.a. Verification above.)

a. Verification--The California Division of Occupational Safety and Health (DOSH) will enforce compliance with state occupational safety and health standards. DOSH may conduct random inspections and must inspect the plant if there is a complaint from an employee.

b. Enforcement--Following investigation DOSH will determine what penalties shall be imposed and what corrective actions must be taken.

c. Filings and Notifications--DOSH will notify the CAM whenever a violation has occurred that could involve DOSH action that would affect plant operation.

5. Postoperation Requirements--None.

XI. SAFETY/FIRE SAFETY

Has the DWR considered measures and procedures to ensure reasonable safety of the plant personnel?

A. Law--California Administrative Code, Title 8, Chapter 4.7, Groups 20 and 27; Uniform Building Code (1976 Edition) Chapter 5, 20, 32, 33; National Fire Prote ction Association Standards 10, 12, 13, 13A, 15, 19B, 194, 196, 198, 20; 24, 26, 30, 70, 214, 198, 26, 27, 231A, 43A, 50A, 58, 72E, 80, 90A, 99.

Public Resources Code, Section 4291. (CDF requirement to clear brush and grass within 100 feet of buildings.)

Title 19, CAC, General Fire Safety Standards applicable to all buildings owned or occupied by the State of California.

1. Preconstruction Requirements--None.

2. Construction Requirements--None.

3. Preoperation Requirements--DWR will arrange for a review by a registered fire protection engineer or the DWR's fire insurance company to assure that Bottle Rock is designed or has been constructed in reasonable conformance with applicable fire safety codes and standards as set forth above.

   a. Verification--DWR will prepare or have prepared a certificate of compliance signed by a registered fire protection engineer or DWR's fire insurance company.

   b. Enforcement--If DWR fails to submit to the the indicated documentation prior to commercial operation of the facility, the CEC can order the utility to delay operation of the facility or take other appropriate action consistent with the certificate and applicable laws.

   c. Filings and Notifications--Prior to commencement of commercial operation of the power plant, DWR shall file with the CAM the signed certificate of compliance.

4. Operation Requirements--None.

5. Postoperation Requirements--None.

XII. SAFETY/HANDLING AND STORAGE OF HAZARDOUS, TOXIC, AND FLAMMABLE MATERIALS

A. Law--Title 8, CAC, Chapter 4.

1. Preconstruction Requirements--None.

2. Construction Requirements--None.

3. Preoperation Requirements--DWR will arrange for a review by a registered civil, mechanical, or industrial engineer of the following:

   - o Stretford system and EIC system pressure vessels and liquid petroleum gas tanks have been designed, constructed and installed in accordance with Title 8, California Administrative Code (CAC) and the Tri-Services Manual, and anchored in resist a force of an ELF - of 0.5 W.

   - o EIC system and Stretford system tanks have been designed, constructed, and installed in accordance with Amercian Petroleum Institute (API) Standard 650 and the Tri-Services Manual, and anchored to resist a force of an ELF of 0.5 W.

   - o Lube oil storage tanks are designed and constructed according to Article 145, Title 8, CAC and anchored to resist a force of an ELF of 0.5 W.

   - o All storage bins and cylinder anchorages for flammable and hazardous substances are designed and constructed to resist a force of an ELF of 0.5 W.

   - o Hyrdogen and oxygen systems are installed according to articles 138 and 139, Title 8, CAC.

   - o Ammonia and CO_2 gas are stored according to Articles 107 and 76, Title 8, CAC.

   DWR will acquire certified code papers for pressure vessels or storage tanks required to be designed to the ASME Boiler and Pressure Vessel Code.

   a. Verification--DWR will prepare a certificate of compliance stamped by a registered civil, mechanical, or industrial engineer.

   b. Enforcement--If DWR fails to submit the documentation, the CEC may order DWR to delay facility operation or take other appropriate action consistent with the certificate and applicable laws and standards.

   c. Filings and Notifications--Prior to commercial operation of the power plant, DWR shall file with the CAM the following documents:

(1) Certificate of Compliance with the requirements under 3. above, stamped by a registered civil, mechanical, or industrial engineer.

(2) Copies of Certified Code Papers for Pressure Vessels.

XIII. TRANSMISSION LINE ENGINEERING/SAFETY AND NUISANCE

Issue I

Will the transmission line be constructed and operated in compliance with California Public Utility Commission (CPUC) General Order 95 (GO-95) and as certified by the CEC?

The delegate agency for GO-95 is the CPUC. The CEC is the responsible agency for design intent.

A. Order--CPUC GO-95 and Design Intent.

1. Preconstruction Requirements--The transmission line shall be designed to satisfy or exceed the requirements of GO-95 and shall be in accordance with the design intent as contained in the certificate.

   a. Verification--None.

   b. Enforcement--None.

   c. Filings and Notifications--None.

2. Construction Requirements--The transmission line will be constructed in accordance with GO-95 requirements and as certified[1] by the CEC staff.

   a. Verification--None.

   b. Enforcement--None.

   c. Filings and Notifications--None.

3. Preoperation Requirements

   a. Verification--DWR will certify that the transmission line has been designed, constructed and will likely be operated in accordance with GO-95 and as certified by the CEC staff. Any waivers granted by CPUC to GO-95 will be noted and the basis and resolution for waivers specified.

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1. DWR will verify the use of the major general design characteristics (Design Intent) as certified by the CEC staff, including:

   a. Number, type and configuration of towers.
   b. Voltage (phase to phase).
   c. Number of circuits.
   d. Size, number and type of conductors (including static wires).
   e. Normal and emergency rating of conductors (MVA and MW).
   f. Route, route length and right-of-way width.
   g. CEC grounding criteria.

b. Enforcement--If noncompliance with GO-95 or the design characteristics approved by the CEC becomes apparent, the CEC staff will determine the appropriate action.

c. Filings and Notifications--DWR will file a certification of compliance with GO-95 and the design characteristics as approved by the CEC. The verification will be signed by a California registered electrical engineer and filed with the CAM within 30 days after completion of line construction.

4. Operating Requirements--The transmission line shall be maintained in accordance with GO-95 and the design intent.

a. Verification--DWR shall inspect the line at least annually and will maintain a summary of the results of these inspections (noncompliance and maintenance) such summaries shall be made available to authorized CEC staff upon request. The transmission line is to be inspected annually for fire prevention purposes also, see XIV, Issue II. C.)

b. Enforcement--Same as 3.b.

c. Filings and Notifications--None.

5. Postoperation Requirements--Postoperation requirements will be in accordance with GO-95.

Issue II

Will the proposed transmission line be constructed and operated in conformance with the following (Items B through H) applicable laws, standards and criteria?

B. Law--Cal/OSHA, 8 California Administrative Code, Article 85, Section 2940 et seq., Article 87, Section 2950, et seq., Section 5095-5099 (Noise).

Law--Construction Safety Orders, Title 8, Subchapter 4 and General Industry Safety Orders Subchapter 7.

The delegate agency is the Division of Occupational Safety and Health (DOSH).

1. Preconstruction Requirements--None.

2. Construction Requirements--Construction activities will be in compliance with applicable law.

a. Verification--DOSH can inspect construction activities in accordance with Title 8, Chapter 4 procedures.

b. Enforcement--If DOSH cites DWR and/or recommends enforcement activities, the CAM will be advised by DOSH.

c. Filings and Notifications--DOSH will notify the CAM of alleged violation(s) and recommended course of action in writing within seven days of such determination.

3. Preoperation Requirements--None.

4. Operating Requirements--The operation (maintenance activities) of the transmission line will be in compliance with applicable law.

a. Verification--Same as B.2.a.

b. Enforcement--Same as B.2.b.

c. Filings and Notifications--Same as B.2.c.

5. Postoperation Requirements--Decommissioning activities shall be in conformance with applicable law.

a. Verification--Same as B.2.a.

b. Enforcement--Same as B.2.b.

c. Filings and Notifications--Same as B.2.c.

C. Law--Public Resources Code Sections 4292 - 4296 and PRC Title 24, Section 1250 through 1258 of the California Administrative Code (State and Private Land Fire Protection, Electrical Clearances).

The delegate agency is the California Department of Forestry (CDF).

1. Preconstruction Requirements--None.

2. Construction Requirements--The transmission line shall be constructed in accordance with PRC 4292 - 4296 and PRC Title 14, Section 1250 through 1258 of the California Administrative Code.

a. Verification--None.

b. Enforcement--None.

c. Filings and Notifications--None.

3. Preoperation Requirements

a. Verification--Within 30 days after completion of construction, DWR shall prepare a signed certificate verifying that the transmission line has been constructed in accordance

with applicable portions of PRC 4292-4296 and PRC Title 14, Section 1250 et seq. of the California Administrative Code.

b. Enforcement--None.

c. Filings and Notifications--The certification that the transmission line has been constructed in accordance with the applicable requirements shall be sent to the CAM and the California Department of Forestry within 30 days of construction completion.

4. Operating Requirements--Clearances will be maintained during operation of the transmission line in accordance with applicable law. DWR shall inspect the transmission line at least annually in a manner which insures that the line will be in compliance throughout the year with an emphasis to insuring that the line maintains clearances during the fire season.

a. Verification--CDF can inspect the transmission line for compliance with requirements.

b. Enforcement--In the event noncompliance is determined by the CDF, DWR shall be so advised by the CDF along with CDF recommendations to achieve compliance within seven days of such a determination.

c. Filings and Notifications--The CDF will simultaneously file a copy of any such notice with the CAM.

5. Postoperation Requirements--None.

D. Law--Federal Aviation Administration (FAA), 49 USCA 1348, 14 CFR, Part 77.

The responsible agency is the FAA.

1. Preconstruction Requirements--A "Notice of Proposed Construction or Alteration" form shall be filed with the FAA if required by Part 77.

a. Verification--DWR shall submit a "Notice of Proposed Construction or Alteration" form to the FAA if it is anticipated that actual construction would result in the transmission line tower or any appurtenances being more than 200 feet in height above the ground level at the site per FAA Part 77.13.

b. Enforcement--Case by case basis.

c. Filings and Notifications--At least 30 days prior to the date the proposed construction is to begin, the form shall be filed with the FAA. A copy of this form shall also be forwarded to the CAM concurrently.

2. Construction Requirements--The transmission line shall be constructed in accordance with applicable law.

   a. Verification--None.

   b. Enforcement--None.

   c. Filings and Notifications--None.

3. Preoperation Requirements--None.

4. Operation Requirements--None.

5. Postoperation Requirements--None.

E. Law--Federal Occupational Safety and Health Act of 1970, 29 USCA 655 et seq., 29 CFR 1910 et seq. (Compliance is covered in Section XIV, Issue II. B of this report.)

F. 47 CFR Part 15.25, Federal Communications Commission (FCC).

The responsible agency is the Federal Communications Commission (FCC).

1. Preconstruction Requirements--None.

   a. Verification--None.

   b. Enforcement--None.

   c. Filings and Notifications--None.

2. Construction Requirements--None.

3. Preoperation Requirements--None.

4. Operating Requirements--FCC Part 15.25 requires that an incidental radiation device (transmission facility) be operated so that the radio frequency energy that is emitted does not cause harmful interference. In the event that harmful interference is caused, the operator of the device is required to promptly take steps to eliminate the harmful interference.

   a. Verification--None.

   b. Enforcement--The FCC allows California utilities to resolve radio or television interference complaints with the source of the complaint.

   c. Filings and Notifications--None.

5. Postoperation Requirements--None.

G. CEC Criteria--Radio and Television Interference.

The responsible agency is the CEC.

1. Preconstruction Requirements--None.

2. Construction Requirements--DWR shall take reasonable precautions prior to and during erection of the conductors to minimize scratches or abrasions on the conductors.

   a. Verification--None.

   b. Enforcement--None.

   c. Filings and Notifications--None.

3. Preoperation Requirements--None.

4. Operating Requirements--Upon receipt of a radio or television interference (RI/TVI) complaint DWR shall make every reasonable effort to locate and correct, at DWR's expense, on a case by case basis, all RI/TVI caused by the power plant transmission facilities, including but not limited to, if necessary, the modification of receivers and/or installation of antennas.

   a. Verification--None.

   b. Enforcement--None.

   c. Filings and Notifications--None.

5. Postoperation Requirements--None.

H. CEC Criteria--CEC Grounding

The responsible agency is the CEC.

1. Preconstruction Requirements--None.

2. Construction Requirements--DWR shall ground all ungrounded metallic fences in a manner equal to or more stringent than the CEC grounding standard, PGandE Drawing 020607, Sheet 1 through 5 of 5 as modified by the following: Regardless of location or ownership all ungrounded fences longer than 150 feet within the right-of-way shall be grounded.

   a. Verification--Included in Section XIV. A.3.a.

   b. Enforcement--Case by case basis.

   c. Filings and Notifications--Same as XIV. A.3.c.

3. Preoperation Requirements--None.

4. Operating Requirements--In the event of complaints regarding induced currents from vehicles, portable objects or such other objects (large metallic roofs, fences, gutters, etc.) DWR will investigate the complaints. If, at DWR's determination, a valid complaint exists, then measures shall be taken at DWR's expense to correct the identified problem provided:

   - The object is located outside the right-of-way; or
   - The object is within the right-of-way and existed prior to right-of-way acquisition.

   For objects installed within the right-of-way after right-of-way acquisition (fences are the only permanent object allowed without prior utility consent), DWR shall notify the owner of the object that it should be grounded. In this case, grounding of the object is the responsibility of the owner. DWR shall advise the owner of this responsibility in writing prior to signing the right-of-way agreement.

   a. Verification--None.

   b. Enforcement--None.

   c. Filings and Notifications--None.

5. Postoperation Requirements--None.

XIV. NOISE

Will the construction and operation of the plant and steam field comply with applicable noise performance criterion, regulations and law?

A. Lake County has an adopted Noise Element to its General Plan. The Noise Element limits noise to 55 dBA L_{dn}. Certain construction activities such as the movement of heavy equipment during daylight hours are exempt. The delegate agency is the Lake County Planning Department.

1. Preconstruction Requirements--None.

2. Construction Requirements--In the event that DWR receives public complaints of the noise due to construction, DWR shall immediately conduct an investigation to determine the extent of the problem. DWR shall take reasonable measures to resolve the complaint.

   In the event that DWR is informed that public complaints have been registered with a public official or agency, and DWR fails to resolve the problem, DWR shall so inform the Lake County Planning Department. If requested by the Department, DWR shall implement the monitoring outlined below:

   - o Conduct noise surveys at the sensitive receptors registering the complaints and at the facility property line nearest the complaining receptors.
   - o Surveys shall be taken for the period of construction working day and under similar circumstances that the complaints were registered.
   - o Surveys shall be reported in terms of the L_x and L_{eq} levels (where x = 10, 50, 90).

   a. Verification--DWR shall notify Lake County of the surveys, of the public complaints, of the mitigation measures which DWR has applied to resolve the impact, and the results of mitigation plans.

   b. Enforcement--Lake County will advise the CAM in writing of any continuous noncompliance conditions, and of any recommendations to achieve compliance.

   c. Filings and Notifications--See a. (Verification) above.

3. Preoperation Requirements--None.

4. Operating Requirements--(Off-site monitoring) DWR will conduct a noise survey at 500 feet from the generating station and the nearest sensitive receptors within 90 days after the plant

reaches its rated power generation capacity and construction is complete. The survey will cover a 24-hour period and will be reported in terms of L_x, L_{eq}, and L_{dn} levels. (L_x where x = 10, 50, 90).

a. Verification--Within 120 days DWR will prepare and submit a report to Lake County Planning Department of the survey and a record of any public complaints of noise from operation of the project. The report will also detail any mitigation plans and schedules to correct noncompliance in the event that the county standards have been exceeded. Following implementation of any mitigation measures, DWR shall submit a second report to Lake County verifying that the results of the mitigations have alleviated any nonconformance. DWR need not provide any additional noise surveys or reports of the off-site operational noise of the project unless the public registers complaints or the noise from the project is suspected of increasing due to change in the operation of the facility.

b. Enforcement--Lake County will advise CAM of their review of DWR's report of any nonconformance with applicable standards and any recommendations to achieve compliance.

c. Filings and Notifications--See a.1 (Verification) above.

B. Regulation--Cal/OSHA noise exposure regulations, 8 CAC Article 105, (General Industrial Safety Orders).

Law--The Occupational Health and Safety Act of 1970, (29 CFR 1910), et seq.). These are basically the same as Cal/OSHA (8 CAC Article 105) noted above, and therefore, no separate monitoring and reporting activities with respect to 29 CFR 1910 are required.

The delegate agency is California Division of Occupational Safety and Health (DOSH).

1. Preconstruction Requirements--None.

2. Construction Requirements--None.

3. Preoperation Requirements--None.

4. Operating Requirements--DWR will conduct a noise survey of the anticipated noise-hazardous areas in the facility when the facility has reached its anticipated capacity factor.

a. Verification--DWR will make the results of the survey available within 90 days after the facility has reached its rated power generation capacity and construction is complete. The results of the noise surveys shall be maintained by DWR and shall be made available upon request to DOSH of the Department of Industrial Relations and CAM.

Surveys should be conducted as prescribed in Title 8, CAC Article 105. The surveys are to provide baseline information should future worker complaints arise.

b. Enforcement--If employee complaints arise during the life of the project due to excessive noise, a compliance determination will be made by DOSH, Department of Industrial Relations. At DWR's option, DOSH Cal/OSHA Consultant Service will aid in correcting nonconformance conditions.

c. Filings and Notifications--DOSH will advise the CAM in writing of all confirmed noncompliance within 30 days of the event.

5. Postoperation Requirements--None.

XV. RELIABILITY

Does the Applicant's proposed criteria and programs ensure that an 80 percent or greater capacity factor will be achieved at plant maturity?

A. LAW--There are presently no applicable standards requiring that a given level of reliability be attained or maintained. Considering the nature of the proposed facility, the CEC staff must ensure that plant reliability be consistent with the target of an 80 percent capacity factor.

1. Preconstruction Requirements

a. Verification--CEC to verify submittal of filing (see c. below).

b. Enforcement--Commission to condition facility certification on Applicant submitting the indicated filing.

c. Filings and Notifications--Applicant to file with the CAM no later that 120 days prior to abatement construction the following information:

(1) EIC component redundancy level (list components necessary for continued abatement operation, number of redundant units, percent capacity of each unit with 100 percent equal to design load).

(2) EIC Equipment Quality Control (prior to equipment purchase or acceptance, detail inspection procedures testing and equipment warranty clauses in purchase contracts).

d. Costs--CEC staff costs are estimated to be 10 man-days.

B. Construction Requirements--None.

C. Preoperation Requirements--None.

D. Operation Requirements--None.

E. Postoperation Requirements--None.

XVI. VISUAL AESTHETICS

Will the construction and operation of the facility create an adverse visual impact in Cobb Valley?

A. Plan--Scenic Highway Element of the Lake County General Plan. (Bottle Rock Road qualifies as a scenic highway under this plan element.)

Lake County Policy--Conditions, Procedures, and Performance Standards for Geothermal Regulation.

1. Preconstruction Requirement--DWR shall prepare a detailed visual mitigation plan. The plan will discuss the specific steps to be undertaken in order to carry out the mitigation proposals identified in the Draft EIR (page 142). These measures should be coordinated with the mitigation requirements identified in the Monitoring and Compliance Plan for biological resources, since most of the activities required for visual mitigation are similar to those proposed for biological resource impacts. In addition to on-site impacts, the visual mitigation plan will include measures for the visual disturbances associated with the access roads and transmission lines.

   a. Verification--DWR will submit the mitigation plan to CEC staff. CEC staff in consultation with the Lake County Planning Department will review the plan for its adequacy.

   b. Enforcement--DWR will not begin construction activities until it has obtained CEC staff approval of the plan. If the submittal is found unacceptable, the CEC staff, Lake County Planning Department, and DWR will meet to resolve the differences.

   c. Filings and Notification--DWR will sbumit the visual mitigation plan to the CEC staff no later than January 16, 1981. This plan may be submitted as a part of the biological resource mitigation plan. If this is done, the joint plan must be identified as such and specify how the measures are intended to mitigate the visual disturbances of the project.

2. Construction Requirements--DWR will implement the measures identified in the approved visual mitigation plan. DWR will inspect the revegetation progress of all disturbed areas for impacts from erosion and will take corrective action whenever necessary until permanent vegetation is established.

   a. Verification--DWR will submit an annual report, during the construction phase, to the CEC indicating compliance with the applicable requirements of the visual mitigation plan.

      Upon reasonable notice, CEC staff will be allowed access to the leasehold.

b. Enforcement--If the requirements are not fulfilled, CEC staff and DWR will attempt to resolve any problems.

c. Filings and Notification--DWR will submit an annual report to the CEC Land Use/Economics staff indicating which measures of the visual mitigation plan have been implemented. This may be submitted in conjunction with the report to be filed as required by the biological resources mitigation plan. Any joint filing should be clearly labeled as such.

3. Preoperation Requirements--DWR will implement applicable measures of the approved visual mitigation plan. DWR will inspect the revegetation progress of all disturbed areas and take corrective action where necessary.

   Upon reasonable notice, CEC staff will be allowed access to the leasehold.

   a. Verification--DWR will submit a statement to CEC staff indicating compliance with the applicable measures of the visual mitigation plan. This may be submitted in conjunction with the report to be filed as required by the biological resources mitigation plan.

   b. Enforcement--If the requirements are not fulfilled, CEC staff and DWR will attempt to resolve any problems.

   c. Filings and Notification--DWR will submit the report to CEC staff. The report will indicate which mitigation measures included in the visual mitigation plan have been complied with. This may be submitted in conjunction with the report to be filed as required by the biological resources mitigation plan.

4. Operating Requirements--DWR will implement the measures of the approved visual mitigation plan.

   If CEC staff in consultation with the Lake County Planning Department determine that the measures included in the approved visual mitigation plan are not sufficient to alleviate the visual disturbances, the CEC staff, Lake County Planning Department, and DWR will meet to determine if and what reasonable additional measures are to be required.

   a. Verification--None required.

   b. Enforcement--Any disagreements regarding additional measures may be brought before the Commission for final resolution.

   c. Filings and Notification--None required.

XVII. WATER RESOURCES

1. California Administrative Code, Title 23

   California Water Code, Part 23

   These laws pertain to the appropriation of water within the state, other than through riparian right.

   In the event that DWR or its contractor(s) utilize a water supply for construction water, irrigation water, domestic uses, sanitary uses, etc. other than from a DWR facility, then DWR shall:

   a. Contact the appropriate county, the CEC, the State Water Resources Control Board, Division of Water Rights, and the appropriate RWQCB, identifying the potential source(s), the quarterly volumes, and the methodology for obtaining the construction phase water and operational water.

   b. Obtain needed permits or waivers, as directed by any of the above agencies.

   As a condition to CEC certification, no earthmoving activities shall proceed without such permits or waivers, and no water shall be obtained without such notification (Item a) DWR should forward to the CEC copies of correpondence showing contact with the above agencies, and those agencies responses.

   There would be no other monitoring/compliance required by this Commission in this matter, but any individual agency requested compliance/monitoring should be evaluated and adhered to if reasonable.

APPENDIX F

Applicant/Staff Jointly-Sponsored Findings,
Conclusions and Conditions

(Except for the Transmission Line Engineering Section,
modified per Decision, p.32)

RELIABILITY

Findings

1. The Applicant's performance criteria for the proposed Bottle Rock power plant are a capacity factor of 80 percent (lifetime average) and an availability factor of 90 percent.

2. Al major components have planned redundancies of 100 percent capacity except the cooling water pumps (50%), hydrogen coolers (50%), and steam jet injectors (33 1/3%).

3. In systems with redundancy, equipment designs and layouts will be employed to allow servicing of individual components at full or reduced plant capacity.

4. For major components where installed redundancy is not practical, such as for the main power transformer and turbine-generator, the Applicant will procure selected spare parts or provide for back-up protection.

5. The Applicant has solicited bids for the steam-turbine generator. Procurement policies proposed by the Applicant include inspection, certified testing, facility testing, financial penalty clauses, and guarantees. These policies are described in the Standard Provision sections of the draft bid document submitted to the CEC by the Applicant.

6. The Applicant proposes to use a Stretford process system combined with a H_2S abatement system (hydrogen peroxide addition) and an upstream cleanup method (EIC process).

7. The Stretford and condensate systems are currently being tested at Geysers Unit 15. However, nongeothermal, industrial experience indicates that the Stretford system will not be a major

reliability problem and the critical components necessary for abatement operation will have installed spares.

8. There has been limited experience with the condensate treatment systems that the Applicant proposes to use. Some problems have arisen due to the adding of hydrogen peroxide to the main circulating system. This chemical addition has caused solids and sludge to form which can clog and foul internal machinery. The design and selection of the system shall be compatible with the original plant design. Thus, the facility should achieve an 80 percent or greater capacity factor at plant maturity.

9. Specific design criteria for the EIC system has not been identified. However, the system is being designed to achieve a 90 percent availability factor.

10. To ensure the ability of the EIC system to achieve a 90 percent availability factor, the Applicant has agreed to submit to the Commission 120 days prior to abatement system construction, its plans for equipment redundancy and quality control for the EIC system.

11. The Applicant is designing the proposed facility for a design earthquake (peak ground acceleration of 0.22g) which has a 10 percent probability of exceedance during the 30-year facility lifetime.

Conclusions

1. If the Applicant implements its proposed procedures and design measures in Findings 1, 2, 3, 4, 6, 8, 9, and 10, it is reasonable to expect the facility to achieve an 80 percent or greater capacity factor at plant maturity.

2. The Applicant's proposed seismic design parameters and associated risk of exceedance are consistent with the system reliability goals.

Conditions

1. The Applicant shall implement its proposed procedures and design measures in Findings 1, 2, 3, 4, 5, 8, 9, and 11.

2. The Applicant shall submit the plans to the Commission specified in Finding 10. If the Applicant fails to submit the plans or those plans are inadequate, the Commission may order the Applicant to delay, or change its plans for, construction and operation of the EIC system.

WATER QUALITY

Findings

1. The water quality standards applicable to the project include:

a. Clean Water Act (33 USC 1321);

b. United States Environmental Protection Agency Quality Criteria for Water (1976);

c. Porter-Cologne Water Quality Control Act (Cal. Water Code §§ 1300, et seq.);

d. California Regional Water Quality Control Plan--Sacramento River Basin (5a), (1975);

e. "Waste Discharge Requirements for Nonsewerable Waste Disposal Land", 1978, California State Water Resources Control Board;

f. California Health & Safety Code sections 25100, et seq.;

g. 22 Cal. Admin. Code, Division 4, Chapters 1 and 30;

h. 23 Cal. Admin. Code, Chapter 3, Subchapter 15;

i. Waste Discharge Requirements, CVRWQCB Order No. 76-202.

2. The surface waters potentially affected by construction and operation of Bottle Rock and its appurtenant facilities are Kelsey Creek, High Valley Creek, Alder Creek, and their tributaries.

3. The principal potential sources of water pollution from the construction and operation of the plant are: (1)

spills from the hydrogen sulfide (H_2S) abatement processes, the cooling water and the condensate reinjection systems; (2) storm runoff; (3) disposal of domestic waste water; and (4) plume-drift deposition.

4. The Applicant plans to store the following chemicals in the H_2S abatement areas:

a. Alkali (sodium carbonate or sodium hydroxide);

b. Sodium ammonium polyvandate (Vanasol);

c. Anthranquinone disulfonic acid (ADA);

d. Hydrogen peroxide;

e. Copper sulfate; and

f. Ferrous sulfate.

5. The DOHS classifies chemicals listed in Finding 4 as hazardous or toxic.

6. If the chemicals used in the H_2S abatement process are spilled and allowed to enter surface waters they could have lethal and toxic effects on fish and other aquatic organisms.

7. The steam condensate will be utilized for cooling water and the excess will be reinjected into the geothermal reservoir. The steam condensate contains harmful materials, including, but not limited to, ammonia, boron, arsenic, and mercury.

8. The adverse impacts that a condensate spill may have on the environment may include: erosion by the condensate flow off the site; increased steam turbidity by the loss of vegetation; increased erosion; effects on aquatic organisms; and changes in the water's chemical composition.

9. To prevent spills of H_2S abatement process materials, condensate and other materials from leaving the site, the Applicant will separately berm or basin the cooling towers, the condensate reinjection sump, the H_2S abatement systems, and to berm and cover the pad with an asphaltic layer. The permeability of the asphaltic layer, concrete areas, and associated berms will be $1x10^{-6}$ cm/sec or less. As a result of this construction, the paved area of the plant site also will serve as a spill retention basin.

10. The proposed total retention volume is equal to approximately 389,000 gallons, or 2.3 times the maximum anticipated spill of 170,000 gallons.

11. All paved areas and the spilled H_2S abatement system materials will drain to sumps on-site, and those collected liquids will be routed from these sumps to the reinjection system.

12. During the dry season, drift (boron, mercury, and ammonia), oil drips from machinery and vehicles, residuals from spills, particulates settled from the air, and other pollutants will accumulate on the plant site.

13. Storm runoff could wash these materials from the plant site in sufficient quantities to adversely affect water quality.

14. To minimize the possibility of contaminated storm runoff discharges from the paved areas to surface waters, the Applicant will divert at least the first 1/2 inch (1.77 cm) of precipitation runoff of the first continuous storm, and

(1) as much as possible of lesser storms, or (2) the maximum possible of "first" storms (after an extended dry period) to the condensate reinjection system.

15. Only after Finding 14 has been complied with and in the event of no spills on-site, will the rainfall discharge gates be opened, allowing runoff to be discharged off the power plant pad to the High Valley Creek drainage. Under such conditions, the impacts on water quality will be minimal due to natural dilution from heavy rainfall and runoff.

16. The soils in the area are not practical for leach-field use because of insufficient depth and poor percolation quality.

17. The Applicant has agreed to utilize a 3,000 gallon septic tank and to dispose of effluent by injection into the steam reservoir, along with the condensate, through the steam suppliers' injection system.

18. The Applicant will file its proposed septic tank drawings with Lake County for review and comment prior to commencement of construction. Lake County will notify the Applicant and the Commission of its comments.

19. The wastes will be treated in a septic tank to remove solids, and the liquid effluent then discharged to the reinjection system line, after the cooling tower basin.

20. The heat and pressure in the steam reservoir is expected to sterilize the wastewater, killing any pathogens, and the combination of the blow-out prevention controls and deep well casings will lessen the chances of transfer of the

wastewater from the steam reservoir to any groundwater acquifers.

21. Bottle Rock's cooling tower is designed to allow .002% of the cooling water flow (83 gallons per hour) to be emitted as drift. This drift will include some noncondensible gases and minute traces of mercury, arsenic, and boron.

22. Atmospheric dispersion, oxidation by the sun and air, and dilution by rainfall will reduce the concentration of contaminants.

23. Analysis from other Geysers geothermal power plants indicates that cooling tower drift deposition does not impact water quality directly, but impacts it indirectly through vegetation loss, and therefore contributes to erosion. The cumulative indirect effects on water quality are not known at this time.

Conclusions

1. There will be no intentional discharge of any toxic or hazardous materials into surface waters.

2. The measures described in Findings 9, 10, 11, and 14 are sufficient to minimize the risk of hazardous materials from leaving the plant site and entering nearby waters.

3. In almost all instances, the containment plan described in Findings 9, 10, 11, and 14 will prevent harmful substances contained in the steam condensate and other materials from entering ground or surface waters in the event of a spill.

4. The measures described in Findings 14 and 15 are adequate to minimize, to an acceptable level, the risk of

toxic runoff entering ground and surface waters.

5. The measures described in Findings 17 and 19 are sufficient to minimize the risk of domestic wastes entering ground and surface waters.

6. Cooling tower drift deposition alone will not measurably affect water quality.

7. Any adverse impacts on water quality due to the proposed development should be insignificant.

8. The Applicant's proposed mitigation and protection measures described in these findings are adequate at this time to protect and preserve the good water quality of Kelsey, High Valley, and Alder Creek.

Conditions

1. The Applicant will implement the specified aforementioned mitigation and protection measures, and the probability for adverse impacts on water quality due to the construction and/or operation of the power plant will be minimal.

2. The Applicant will participate in the forthcoming cooperative Geysers KGRA Aquatic Resources Monitoring Program, or, if this program fails to materialize, will perform the water quality monitoring program as described in the AFC.

WATER RESOURCES AND HYDROLOGY

Findings

1. About 10 acre-feet (3.25 million gallons) of water will be used at the proposed plant for (1) construction, (2) dust control, (3) domestic uses, (4) landscaping, (5) initial filling of the cooling tower, and (6) power plant cooling during the 42-month construction period.

2. Annual water needs for operation of the plant will be about 4 acre-feet (1.3 million gallons).

3. Mean annual runoff in the hydrologic basin consisting of Upper Lake, Scotts Valley, Big Valley, Lower Lake, and Clear Lake is 294,000 acre-feet.

4. Water requirements for plant operation and domestic and landscaping will be met using sources of water on or near the site.

5. Potable water will be required for sanitary use, building maintenance, and the operation of the hydrogen sulfide abatement system.

6. To meet the water requirement described in Finding 5, water will be acquired from an outside source, now being developed between the Applicant, the California Department of Transportation, and California Department of Forestry, and treated to meet potable standards. Bottled drinking water will be supplied.

7. The initial filling of the cooling tower basin will require approximately 450,000 gallons, or 1.4 acre-feet.

8. Steam condensate will be used for power plant cooling. The plant produces enough condensate to satisfy the requirements of cooling tower make-up, except for initial start-up. Initial start-up

water will come from outside sources, other than a spring, seep, or surface stream. Alternatives include the Applicant's facilities or local water suppliers.

9. There are no specific design standards with respect to flood hazards that apply to the site and related facilities. Drainage design is primarily a matter of sound engineering judgment and proper assessment of the risks and inconveniences associated with a chosen level of drainage protection.

10. The proposed site is located approximately 40 feet above an unnamed tributary. Under the worst flooding scenario, the proposed plant site will be safe from stream flooding.

11. The power plant pad drainage system will be designed to carry the 100-year expected flood or the maximum accidental spill, whichever is greater.

12. Drainage water will be collected in a reinforced, concrete drainage sump.

13. Rainfall runoff and all accidental spills, as discussed in Findings 14 and 15 of Water Quality will be routed to the steam supplier's reinjection well.

14. The spill retention basin described in Water Quality Finding 9 will accomodate rainfall from a 100-year storm.

Conclusions

1. Water requirements of the proposed project will not significantly impact the region's water resources.

2. The location of the proposed plant site, the design of the drainage system, and the construction of the retention basin, will adequately protect the proposed project from flood damage.

Condition

1. The Applicant shall implement its latest proposed water use plans and flood protection measures, as agreed to during the May 27, 1980 workshops.

BIOLOGICAL RESOURCES

Findings

1. The following laws govern the preservation and protection of biological resources:

--Federal Endangered Species Act of 1973 and implementing regulations.

--Ecological Reserve Act of 1968 and implementing regulations, Fish and Game Code sections 1580-1584.

--California Species Preservation Act of 1970, Fish and Game Code sections 900-903, 2050-2055.

--Fully Protected Species Act, Fish and Game Code sections 3511, 4700, 5000, and 5515.

--Native Plant Protection, Fish and Game Code sections 1900-1913.

2. Vegetation stress has occurred from cooling tower drift at the Geysers. Field and laboratory studies have tentatively implicated borates as a prime cause of these impacts. The Applicant has proposed to provide a drift eliminator system for the cooling tower which specifies a drift loss rate of 0.002% of the circulating water rate. The Applicant's proposed use of the EIC abatement system will further reduce the boron content in the drift. Accordingly, the operation of the proposed project is likely to cause less vegetation damage resulting from the boron in cooling tower drift than other existing units in the Geysers.

3. The Applicant will monitor vegetation stress and damage in the vicinity of the power plant by use of visual observation and infrared aerial photography, as follows:

a. Visual observations and infrared aerial photography shall begin prior to power plant observation to establish a baseline against which cooling tower drift impacts may be evaluated.

b. The Applicant shall submit the Commission a statement indicating that Condition a. has been met. The statement shall identify where, when, and how the visual observations were made; the date, area, time, and altitude coverage of the aerial photography; and the results of the observations and photography.

c. The Applicant shall continue the visual observations and aerial photography for the first three years of plant operation. The photography shall be done in the same season each year. These photographs will be made available to CEC upon request. Annual reports documenting the results of the observations and photography shall be filed with the Commission by January 1 of each year. If significant stress, damage or changes are identified, the Applicant, CEC Staff, and California Department of Fish and Game shall meet to decide what further mitigation measures are necessary. If agreement cannot be reached the dispute may be referred to the Commission.

4. The Applicant will participate in a regional study, if deemed necessary by the Commission, in cooperation with other appropriate developers, applicants, and utilities, to

determine cumulative impacts from drift in the Geysers KGRA and to determine a regional mitigation and management program.

5. Areas of critical concern which contain unique habitats and which therefore need special protection are known to exist within the Francisco leasehold.

6. The riparian corridors, springs, seasonably wet areas, relic stands of native coastal prairie, meadows, and snags have been identified as areas of critical concern on the leasehold.

7. The meadows, springs, and seasonably wet areas are of vital importance to wildlife survival during dry seasons and should be protected from destruction or degradation.

8. There have been adverse impacts to the biological resources due to leasehold development by the steam supplier. These impacts are being mitigated according to conditions found in the use permits for exploratory drilling (Appendix of NOI) and in the full field use permit issued by Lake County. The steam supplier has agreed to update the Applicant on the implementation of these measures.

9. The Department of Fish and Game has indicated that it considers the proposed power plant site, ponderosa pine-mixed evergreen forest, to be valuable wildlife habitat.

10. Full field development including the power plant site will result in the loss of approximately 15 acres of ponderosa pine-mixed evergreen forest.

11. The Applicant will implement the mitigation measures as set forth in the AFC (pages V-108 to V-115) with the

possible exception of brush piles to compensate for this habitat loss.

12. A small meadow of biological significance also exists just north of the power plant site, at the toe of the fill slope.

13. This meadow could be adversely affected by sediment deposition or any other disturbances.

14. The Applicant will utilize a sedimentation control method adequate to stop sediment deposition in this meadow area. A description of this method has been submitted and accepted as adequate by the CEC Staff.

15. The American Peregrine Falcon is an endangered species by designation of California and Federal law.

16. The American Peregrine Falcon has been observed in the Geysers-Calistoga Known Geothermal Resource Area.

17. No active breeding sites for the American Peregrine Falcon are known to exist at the Francisco leasehold.

18. The Bottle Rock site is not included within the federally proposed "Critical Habitat Zone" for the American Peregrine Falcon.

19. There are no rare, threatened, or endangered wildlife species known to exist at the Francisco leasehold.

20. The Golden Eagle and the Ringtail are fully protected species by designation of California law.

21. The Golden Eagle and the Ringtail have been observed in the Geysers-Calistoga Known Geothermal Resource Area.

22. The Francisco leasehold is not known to be a

significant breeding or feeding area for either the Golden Eagle or the Ringtail.

23. No rare or endangered plant species are known to exist at the Francisco leasehold.

24. Two plant species of special concern, the St. Helens fawn lily (Erythronium helenae) and Lomatium repostum, a member of the carrot family, are found on the leasehold.

25. Population of these plants existing in the vicinity of construction activities will be flagged and the construction crews alerted so that no disturbance will occur in these areas.

26. At present, the leasehold does not support significant quantities of commercially important plant species.

27. Eight wildlife species of recreational value, in addition to trout, are known to exist in or near the Francisco leasehold.

28. Loss of habitat from the project will include some loss of breeding and feeding areas for some of these recreational species.

29. Direct loss of habitat due to full field development including the power plant site will be approximately 15 acres of mixed evergreen and yellow pine forest, 7.5 acres of chaparral, and 0.3 acre of riparian habitat.

30. Reduction in habitat value may occur in areas adjacent to developed areas for some species.

31. The Applicant has agreed to submit a detailed field implementation plan for the proposed mitigation measures and

monitoring studies. This plan will be submitted to the Commission for review by January 16, 1981. The Commission Staff will inform the Applicant by February 2, 1981, of the adequacy of the proposed plan. If the proposed plan is found inadequate the Applicant and the Commission Staff shall meet to resolve their differences.

32. On the leasehold in the vicinity of the proposed power plant site is an intermittent tributary to High Valley Creek. Further downstream, High Valley Creek becomes a year-round stream. This creek, along with Alder Creek located east of the leasehold, empties into Kelsey Creek. This drainage system into Clear Lake is an important trout spawning area which will be carefully protected from siltation and accidental spills associated with site development and power plant operations.

33. The Applicant will build a retention barrier around the plant site to contain accidental spills, and an on-site drainage system to collect and dispose of spill material. This will provide protection to off-site wildlife habitat and spawning areas in High Creek Valley, described in Finding 32.

34. The Applicant will implement the mitigation measures found in the NOI (pages V-16 and VII-14 and 15) and the AFC (pages V-102 to V-109) to control erosion and sedimentation of valuable biological resources described in Finding 32.

35. The Applicant will monitor for the life of the project, cut and fill slopes and other disturbed areas for impacts from gulley erosion, and will take corrective measures

whenever necessary until permanent vegetation is established and no further erosion occurs.

36. The Applicant will not undertake major earthmoving activity during December, January, February, and March, unless permission is obtained from the CEC. Permission will be given in a timely manner. If earthmoving activities are planned from November to April, temporary measures will be implemented to control erosion, as discussed in the AFC (pages V-101 to V-104).

37. The Applicant will undertake mitigation measures for the protection and preservation of biological resources. These mitigation measures are specified in the NOI on pages V-16 and VII-14 to 15, and AFC pages V-108 to V-115.

38. Both the U.S. Fish and Wildlife Service and the California Department of Fish and Game have expressed concern over the acceptability of cumulative impacts from this and other geothermal projects. This is not an issue which can or should be resolved within the context of this AFC, as it is a problem which is generically associated with all geothermal development in the Geysers region. The Applicant has agreed to participate with other appropriate agencies, developers, and utilities in a generic proceeding to identify these cumulative impacts and to specify appropriate mitigation measures, compensation plans or regional monitoring programs which are needed to reduce these cumulative impacts to an acceptable level.

39. The Applicant will submit a detailed decommissioning plan to CEC for review and approval one year prior to power

plant operation termination. This plan will describe in detail the measures required to either restore the leasehold to its pre-geothermal development condition or explain why restoration is not being considered and describe any alternative plans that are being considered with regard to biological resources.

Conclusions

1. The proposed project will contribute to a cumulative biological resources impact in the KGRA.

2. If the measures identified in Findings 3, 4, 11, 14, 31, 33, 34, 35, 36, 37, 38, and 39 are implemented, the impacts on biological resources will be mitigated to an acceptable level.

3. No rare, threatened, endangered or legally protected species, species of special concern, or commercial and recreational resources will be significantly impacted, if the mitigation measure in Finding 24 is implemented.

Condition

1. The Applicant will implement the measures specified in Findings 3, 4, 11, 14, 24, 31, 33, 34, 35, 36, 37, 38, and 39.

GEOTECHNICAL

Findings

1. The laws and ordinances applicable to the proposed project are:

   a. California Business and Professions Code Section 7835.

   b. Uniform Building Code, Chapter 70, section 7015 (1979 edition).

   c. Uniform Building Code, Chaper 70, section 7014.

2. Except for the location of the proposed cooling tower, no hazardous or adverse geologic conditions exist at the project site. The nature and potential effects of the actual site conditions will be better understood based on information obtained during and after site preparation.

3. The proposed cooling tower will be located on shear zone rocks, a potentially hazardous or adverse geologic condition. The specific measures to mitigate this potential adverse condition cannot be determined until the exact conditions are encountered during site excavation.

4. The Applicant will effect the following mitigation measures:

   a. A certified engineering geologist will inspect the shear zone during and after site excavation.

   b. During and after excavation, additional plate bearing tests may be made to verify estimated bearing pressures. If the tests indicate the estimated foundation pressures are not sufficient

for the structure's foundation, the Applicant will:

1) Increase the structural strength of the reinforced concrete mat foundation or,
2) Over-excavate and replace with engineered fill or back fill concrete or,
3) Stabilize the shear zone by grouting, or
4) Use a combination of these.

c. Use expansion joints in the reinforce concrete foundation to allow for minor movement of the concrete or soil.

d. Install survey markers on both sides and in the shear zone area after the major earthwork is performed to monitor any movement across or along the shear zone.

5. The final choice of specific mitigation methods are best determined after the geologic conditions are encountered. If it is determined that the foundation mitigation measures proposed in Finding 4 are not sufficient, there will be adequate time to modify the design of the cooling tower.

Conclusion

1. There are no hazardous or adverse geologic conditions which cannot be adequately mitigated to preclude the siting of the proposed power.

Conditions

1. Site excavation and grading shall be done according to applicable laws and ordinances.

2. The Applicant shall implement the mitigation measures in Finding 4.

3. In implementing mitigation measure in Finding 4.d., the Applicant shall notify the Commission staff at least seven days prior to completion of the final grading of the proposed location of the survey markers. Unless the Commission staff indicates otherwise, the Applicant's proposal shall be deemed adequate within seven days after the Commissions receipt of notification. The survey markers shall be installed and surveyed according to the following schedule:

a. Once a month until start of foundation construction.

b. Every three months thereafter until completion of facility construction.

c. Once a year thereafter.

4. The Applicant shall submit to the Commission staff specific plans to mitigate any adverse geologic conditions associated with the shear zone rocks. Unless the Commission staff indicates otherwise within three working days after receipt of notification, the proposal shall be deemed adequate. If the Commission staff indicates the proposal is inadequate, construction in the affected area shall be halted, except for construction necessary to provide safety. The Applicant and CEC staff shall resolve the dispute within seven days of notification to the Applicant. If the matter cannot be resolved, it may be brought to the Commission.

5. The Applicant shall assign a qualified engineering geologist to assure compliance with the geotechnical requirements. The engineer shall notify the Commission staff of any newly confirmed imminent geologic hazards or adverse geologic conditions warranting substantial changes in facility design or other mitigation measures. ("Substantial changes" is defined in the Structural Engineering section). Upon reasonable notification, the Commission staff and Lake County Building Department shall make whatever site inspection of adverse geologic conditions and mitigation measures they deem necessary.

6. A registered engineering geologist shall inspect the site at least once a week during excavation. Upon completion of site excavation he will evaluate site geologic conditions and geologic safety. He also will prepare a geologic map of the completed excavation and submit this map to the Commision staff.

7. The Commission staff and Lake County Building Department may make unscheduled site inspections during excavation, grading, and completion of earthwork. Notice shall be given to the Applicant's construction headquarters the day prior to the inspection and inspectors shall check in with the Project Engineer upon arrival. Inspectors shall bring their own safety equipment.

NEED

Findings

1. In the most recent Biennial Report (adopted December 20, 1979), the Commission concluded that "there are severe limits on the extent to which the state can look to conventional energy sources.... for new electricity supplies" and that for environmental, health, and resource considerations, energy sources such as geothermal "should be significantly expanded in the state's mix of electricity supplies."

2. In the Biennial Report, the Commission found that geothermal energy is "one of the cheapest sources of electricity generation" and "should be expanded because of [its] favorable environmental characteristics, efficiency, more stable costs, and the fact that [it is] indigenous to California."

3. In the Biennial Report, the Commission determined that a reasonable balance of state interests, as required by Section 25309(b) of the Public Resources Code, would be promoted for the reasons outlined in Finding 2, by giving "first priority to geothermal energy, co-generation, and other renewable energy sources" and by authorizing the state's utilities to construct and to give preference to such energy sources, including geothermal power plants, not only to meet expected increases in electricity demand but also to meet a Commission policy to reduce oil and natural gas use by 50% by 1991.

4. In the Biennial Report, the Commission determined that to meet anticipated growth in demand for electricity, to allow retirement of older facilities, to make up for potential losses resulting from the expiration of contracts for power from the Pacific Northwest, and to meet a 50% oil and gas reduction policy, approximately 7,000 megawatts of new generating capacity would be required in Northern California service areas by 1991.

5. The Bottle Rock power plant will, when operational, produce energy equivalent to 674 thousand barrels of oil per year and thus is consistent with the

Commission's oil reduction policy.

6. In the Biennial Report, the Commission determined that since the probable maximum amount of new generation capacity achievable from geothermal and other preferred energy sources by 1991 would be less than the total amount of new capacity needed to achieve a reasonable balance of state interests, as required by Section 25309(b), each and every geothermal proposal would be deemed needed provided the proposal generally possessed the favorable characteristics which made geothermal a preferred source for electricity supply. For that reason, the Commission determined that any geothermal facility which demonstrates reasonably mitigable environmental impacts and complies with air and water quality standards shall be deemed needed and in conformance with the forecast and assessment adopted pursuant to Section 25309(b).

7. As the findings and conclusions in the other sections demonstrate, the environmental impacts associated with Bottle Rock are reasonably mitigable.

8. As the findings and conclusions in Water Quality and Air Quality demonstrate, the proposed project will comply with all applicable air and water quality laws, standards and ordinances.

Conclusions

1. The Bottle Rock project is deemed to be needed.

SOILS

Findings

1. The CEC Staff has applied the following laws, standards, and ordinances to the Bottle Rock power plant:

   a. Waste Discharge Requirements for Non-Sewerable Waste Disposal to Land, California State Water Resources Control Board, 1978.

   b. Lake County Planning Commission Resolution No. 75-154, Sections IIB and IIC (except II C7 and IIC8).

   c. California Regional Water Quality Control Plan-Sacramento River Basin (5A). (1975).

2. Two soil series, Josephine and Maymen, are found at the plant site. These series are highly erosive.

3. Earthmoving activities associated with the construction of the proposed power plant create a significant potential for sedimentation and accelerated erosion.

4. The Applicant has estimated the sediment yield from the power plant site at between 12 to 100 tons per acre-per year without the use of adequate controls.

5. Two main environmental impacts may result from accelerated erosion of soil at the site: 1) the loss of the soil resource itself; the associated loss of watershed and biological habitats; 2) the degradation of the water quality of High Valley and Kelsey Creeks by sediment deposition, and the consequent adverse impact on beneficial uses of those waters.

6. The Sacramento River Basin Plan (5a), of the Central

Valley Regional Water Quality Control Board, requires that no materials, including soil, be discharged to waterways of a basin if they negatively affect the beneficial uses of the water.

7. The Applicant will effect the following mitigation measures to control soil loss and erosion/sediment transport:

a. Sprinkling operation during construction.

b. Small debris dams/settling basins or other erosion control techniques will be constructed and maintained in the runoff drainage channels of the plant site area during construction.

c. Those measures implemented in item b will be effectively maintained throughout the construction period.

d. Slopes will be vegetated with grasses, trees and shrubs.

e. Disturbed areas will be hydromulched, seeded, and straw-punched (revegetated) immediately following construction activities. The revegetated areas will be irrigated (watered) as needed, in order to establish vegetation prior to the rainy season.

f. Slopes will be monitored for gullying on a periodic basis. Gullies that form on the slopes will be refilled, shaped, and revegetated, as described in items d and e, as soon as is practicable.

g. No earth-moving activities will occur during rainy or high-wind periods.

h. A sedimentation collection and containment system will be constructed during site preparation to collect

the northward flow of drainage from the plant pad. (There is no need for sedimentation control to the southwest of the plant site because all drainage will be directed to the north.)

i. The Applicant will follow the requirements set forth in Sections IIB and IIC (Except IIC7 and IIC8) of the Lake County Planning Commission Resolution No. 75-154.

8. At this time, there are few field measurements of soil loss or rates of soil sedimentation to verify the success of existing erosion control plans employing similar measures for other geothermal projects in the Geysers KGRA.

9. The Applicant agrees to maintain an adequate working level within the sediment collection system.

10. The Applicant agrees to quantify annually the sediment removed from the sedimentation containment system; and to provide this information to the Commission and to the Central Valley Regional Water Control Board Quality Board (CVRWQB). This information will be used by CEC staff to evaluate the effectiveness of the erosion control practices.

11. The Applicant will replace straw bales as needed to assure sediment control until adequate permanent vegetation is established to reduce erosion to insignificant levels.

12. The Applicant will remove sediment deposited in front of straw bales in order to provide an adequate area for sediment deposition at all times.

13. Drainage downdrains will be an adequate size to facilitate drainage and to prevent clogging. These drains will be inspected periodically and cleaned/maintained as needed.

14. The Applicant will provide proper sediment control devices at the drain discharge areas. These controls will include riprap and will be maintained to assure sediment containment after vegetation is permanently established and straw bales are deemed no longer necessary.

Conclusion

1. If the Applicant's proposed mitigation measures are implemented, the rate of soil erosion and consequent sediment yield to local waterways will be minimized, and the proposed project will comply with applicable laws, standards and ordinances.

Conditions

1. To prevent sedimentation and accelerated erosion of soil at the proposed site, the Applicant shall implement the mitigation measures described in Findings 7, 9, 11, 12, 13, and 14.

2. The Applicant will annually quantify the amount of sediment removed from the proposed sedimentation collection and containment system and will provide this information prior to October each year to the CEC Staff and the CVRWQCB. If the sediment yield information supplied to the CEC Staff indicates that the applied mitigation measures are inadequate, the CEC Staff in consultation with the CVRWQCB retain jurisdiction to impose alternative mitigation measures.

TRANSMISSION LINE ENGINEERING

Findings

1. The Applicant proposed to construct a 1.1 mile, 230 KV transmission line from the proposed 55 MW Bottle Rock power plant on the Francisco leasehold to the PG&E Unit 17 power plant tap line. The power would flow to PG&E Unit 11, to Castle Rock junction, and to PG&E's electrical system.

2. The Applicant has rights to two nearby leaseholds, one of which is contiguous to the Francisco leasehold. The Applicant has identified a total potential of approximately 110 MW at these leaseholds. If constructed, these units could connect to the proposed Bottle Rock transmission line. Development of these leaseholds is speculative, however, since neither steam field is proven and neither potential unit is in the Applicant's 1979 resource plan (South Geysers NOI).

3. In March, 1980, Northern California Power Agency (NCPA) received NOI approval for a 66 MW unit, designated "NCPA 1", north of Bottle Rock power plant. At the present time, NCPA is considering connecting NCPA 1 to Bottle Rock power plant as well as to Unit 11, Unit 17, and a nearby

115 KV line. NCPA has also indicated the possibility of constructing an additional 100 MW in the same vicinity.

4. CEC Staff and consultant Dr. Hans Puttgen have conducted a transmission engineering economic analysis of six transmission configurations for the area, assuming varied degrees of development. Environmental factors were not included as a part of this particular study.

5. The analysis referred to in Finding 4 concludes that if a unit were constructed on either leasehold specified in Finding 2, it would be more economical for the Applicant to connect Bottle Rock to PG&E Unit 11 than to Unit 17.

6. The analysis also concludes that if Bottle Rock is connected with Unit 17 and if NCPA 1 is subsequently constructed, it will be uneconomical for NCPA 1 to connect to Bottle Rock.

7. Whether Bottle Rock connects to Unit 11 or to Unit 17, the Applicant will need a wheeling contract with PG&E. As of August 1, 1980, the Applicant had not yet completed a wheeling contract with PG&E.

8. As a result of the Applicant's intervention in the PG&E Unit 17 proceedings before the Commission, PG&E by stipulation agreed to provide Applicant with transmission service out of the Geysers. Applicant has other facilities within PG&E's service area which require the Applicant to complete a wheeling contract with PG&E by April 1, 1983. The Applicant has no alternative transmission plans.

9. The Applicant has proposed constructing a single-circuit transmission line consisting of 1113 kcmil all aluminum (AA) conductors.

10. The proposed conductor size (1113 kcmil) makes use of conductors commonly used in the KGRA and would have moderate transmission losses for loads up to 120 MW.

11. This size and type of circuit is generally considered to have a thermal limit of approximately 300 MW, but can only carry up to 120 MW economically (based on transmission losses), according to CEC Staff analyses. The Applicant is presently proposing to carry 55 MW on the circuit.

12. The existing collector system from Unit 11 to Castle Rock junction consists of two 113 kcmil single circuit transmission lines. This system has a capacity of 600 MW, based on the thermal limit, but only carries up to 240 MW economically (based on transmission losses), according to CEC staff analyses.

13. Existing PG&E Units 5, 6, and 11, which use the collector system described in Finding 12, total 212 MW. PG&E Unit 17, recently approved by the California Energy Commission, is scheduled to go on line in 1982, and will add 110 MW to this system. Bottle Rock, scheduled to start up in 1984, will add 55 MW, resulting in a total of 377 MW, for the Unit 11-Castle Rock System.

Conclusions

1. Future development in the vicinity of the Bottle Rock power plant is uncertain at this time. The proposed route for the Bottle Rock transmission line from Bottle

Rock to PG&E Unit 17 is economically acceptable if the Applicant or another developer does not connect a future unit on either of the other leaseholds to which the Applicant has rights to the Bottle Rock line. Otherwise Unit 11 would be the preferable termination point, according to the analysis described in Finding 4.

2. If the condition of Conclusion 1 is met, the proposed 1113 kcmil conductor size is reasonable and adequate in that it (1) makes use of standardized conductors, (2) has moderate transmission losses, and (3) will accommodate the generation from the proposed power plant plus an additional 65 MW.

3. The existing system from Unit 11 to Castle Rock junction can accommodate the power from the Bottle Rock plant, based on the thermal limit, but will be uneconomical unless the collector line is modified by PG&E.

Conditions

1. The Applicant will verify to the Commission that a wheeling contract has been completed with PG&E.

TRANSMISSION LINE SAFETY AND NUISANCE

Findings

1. The CEC Staff is applying the following laws, standards, and criteria to the Bottle Rock proposed 230 kV transmission line and alternatives.

a. Noise: (Construction) Cal-DOSH, 8 California Administrative Code section 5095-5099. (NOI Noise section pp. 32 & 36.)

b. Noise: (Operation) Sonoma County--Sonoma County General Plan Noise Element (adopted January 1978).

c. Noise: Lake County--Lake County General Plan Noise Element (NOI Noise section pp. 35 & 37.)

d. Safety/Reliability: CPUC GO-95. (NOI pp. VI-4, V-32, AFC p. VIII-3.)

e. Safety: Cal-DOSH, 8 California Administrative Code, Article 85, sections 2940, et seq., Article 87, sections 2950, et seq., and general Construction Safety Orders Title 8, Chapter 4, Subchapters 4 and 7 (AFC p. VII-3).

f. Safety: (Interference with Navigable Airspace) FAA, 49 USCA 1348, 14 CFR Part 77.

g. Nuisance: (Radio interference) Federal Communications Commission rules and regulations, 47 CFR Part 15.25 (Incidental radiation devices).

h. Electrical Clearances: Public Resources Code sections 4292-4296, State and Private Land Fire Protection (Power Line Fire Prevention Field Guide, 1977).

i. Staff grounding criteria.

j. Staff RI/TVI criteria.

2. Due to the absence of residences near the transmission line, it is unlikely that there will be community annoyance impacts due to transmission line construction noise. If noise impacts do occur they will be short term.

3. The proposed transmission line will produce audible noise under wet conductor conditions of less than or equal to 40 dB(A) at 100 feet from the transmission line.

4. The noise level in Finding 3 will usually be near or below ambient background levels, and is not expected to violate the Sonoma or Lake County General Plan Noise Elements or to be a nuisance to the public.

5. California Public Utilities Commission (PUC) General Order 95 (GO-95) sets forth minimal safety and reliability related construction standards.

6. The Applicant has agreed to comply with the provisions of GO-95.

7. If any transmission tower or conductors will be greater than 200 feet above ground at the site, the Applicant will file a notice of proposed construction or alteration (Form 7460-1) under Part 77.13 of the Federal Aviation Agency rules and regulations.

8. The Commission Staff has developed radio interference and television interference RI/TVI mitigation measures. These measures require the Applicant, upon receipt of a valid complaint, to take all reasonable steps to locate and correct, on a case-by-case basis, all RI/TVI caused by the transmission

facilities including, if necessary, the modification of receivers and/or installation of antennas.

9. The Applicant has agreed to perform at its expense the mitigation measures referenced in Finding 8 if radio or television interference is determined to be caused by the proposed transmission facilities for Bottle Rock.

10. The California Department of Forestry requires minimum fire protection clearance standards under Public Resources Code sections 4292-4296.

11. The Applicant has agreed to provide a certification from a Registered Electrical Engineer to the effect that the transmission line has been constructed in accordance with the CEC certification and applicable laws, standards, and criteria. This certification shall be provided to the Commission within 30 days of completion of construction.

12. The Applicant will inspect the transmission line annually and ensure that adequate clearances in accordance with Public Resources Code sections 4292-4296 are provided for, especially during the fire season.

13. The Applicant will inspect the transmission line annually to assure compliance with the provisions of GO-95 and for maintenance identification. Records of such inspections shall be maintained by the Applicant and shall be made available to authorized CEC Staff upon request.

14. The electric and magnetic fields produced by a transmission line can induce a voltage on nearby ungrounded metallic objects which may be an electrical shock hazard. Grounding

fences or other metallic objects is effective in minimizing shock hazards.

15. The Applicant agrees to use the grounding criteria as specified in the Pittsburg 8 and 9 NOI, Docket No. 78-NOI-2, Section 5.2, Figures CEC 5.2-6 through 5.2-10 and modified as follows:

a. Regardless of location or usage, all ungrounded fences longer than 150 feet within the right-of-way shall be grounded following the procedures of Figures 5.2-6 through 5.2-10.

b. In the event of complaints regarding induced current from vehicles, portable objects or other objects (such as large metallic roofs, fences, gutters, etc.), the Applicant shall investigate the complaints. If a valid complaint exists, measures shall be taken at Applicant's expense to correct the identified problem.

16. It is highly unlikely that the proposed transmission line will cause a safety hazard due to induced current if the grounding criteria referenced in Finding 14 are followed.

Conclusion

1. If the Applicant agrees to comply with the standards and measures set forth in Findings 1, 5, 7, 8, 10, 11, 12, and 14, the proposed transmission line will be designated, constructed, and operated in conformance with all applicable laws, standards, and criteria, and will not pose a significant safety hazard or be a nuisance to the public.

Condition

1. The proposed transmission line shall be designed, constructed, and operated to comply with the laws, standards, and criteria listed in Findings 1, 5, 7, 8, 10, 11, 12, and 14.

WASTE DISPOSAL

Findings

1. CEC Staff has applied the following to the Bottle Rock power plant:

   a. California Water Code, §13000 et seq; §13360;

   b. 23 Cal. Admin. Code, Chapter 3, Subchapter 15;

   c. California Health and Safety Code §25100 et seq;

   d. 22 Cal. Admin. Code, Division 4, Chapter 30; (Department of Health Services regulations).

   e. 14 Cal. Admin. Code, Division 7, Chapter 3;

   f. "California Assessment Manual for Hazardous Waste," published by the Department of Health Services;

   g. "Waste Discharge Requirements for Non-Sewerable Waste Disposal to Land," published by the State Water Resources Control Board;

   h. Lake County Code, Chapter 9, "Health and Sanitation," Article 1;

   i. "Hazardous Materials Transportation Act," 49 U.S.C. §1801 et seq;

   j. 49 CFR, Parts 100-199;

   k. California Vehicle Code, §2402, §34501, and

   l. 13 Cal. Admin. Code, Articles 1.3 and 1.5

2. 22 Cal. Admin. Code, §66088, describes a "hazardous waste" as any waste or mixture of wastes that is toxic, corrosive, flammable, an irritant, explosive, or which may cause substantial injury, serious illness or harm to humans, domestic livestock, or wildlife. The wastes produced by the Bottle Rock project are

considered to be hazardous because they may contain toxic substances that are present in the steam that is used by the power plant.

3. If any waste contains a hazardous material, 22 Cal. Admin. Code §66505 requires that the Applicant insure that the waste is taken to a facility that is permitted to accept the waste. Haulers of this waste (except for saleable waste) must be "Hazardous Waste Haulers" registered with the Department of Health Services.

4. Cal. Admin. Code 22, Division 4, Chapter 30 requires that the recovered spills of toxic chemicals that are stored or contained at the plant site be transported to a licensed disposal site. Any spills that occur while the substance is within the control of the Applicant are the Applicant's responsibility.

5. The Applicant can comply with the regulations described in Findings 3 & 4.

6. Spills that occur during transportation are the responsibility of the entity transporting the substance. The Applicant, however, may be required to retain collected remnants of spilled substances at the plant site until such time as their proper disposal can be arranged.

7. Any storage of a hazardous material at the site for a period exceeding 60 days may require a modification of the operating permit.

8. Solid wastes to be disposed of are:

   a. Sulfur;

   b. Cooling tower sludge;

   c. Waste oil;

d. Maintenance waste;

e. Sewage;

f. Construction waste.

9. Class II-1 disposal sites near Richmond, Martinez, Kelseyville and Middletown are presently available and licensed to receive hazardous geothermal wastes such as cooling tower sludge and sulfur from the Geysers. The use of any of these sites for the disposal of the appropriate wastes listed in Finding 8 will satisfy the statutory requirements for hazardous waste disposal.

10. Approximately 380 lbs/hr. of sulfur can be produced by the Stretford Unit, but the actual rate of production is unknown at this time.

11. Sulfur produced as an H_2S abatement system waste is considered to be a hazardous waste by DOHS.

12. The Applicant is currently conducting a study of the marketability of its sulfur. If the sulfur is not sold, it will be disposed of in one of the disposal sites listed in Finding 9.

13. Approximately 16,800 gals/yr. of cooling tower sludge will be produced by the heat dissipation system.

14. The cooling tower sludge is considered to be a hazardous waste by the DOHS.

15. The Applicant proposes to have the sludge and sulfur disposed at an appropriately licensed site in Richmond, California.

16. A shorter haul route would lessen the chances of accidental spills and reduce transportation costs. Kelseyville and Middletown sites have the capacity to contain the wastes and would require a shorter hauling distance.

17. The Regional Water Quality Control Board discovered a violation of the permit by the operator of the Middletown site. Continued noncompliance could result in the disposal site being closed.

18. The Applicant will investigate disposal of the sulfur and sludge at Kelseyville or Middletown. If these sites are found to be unsuitable the Applicant will dispose of the wastes at the Richmond or Martinez sites. Applicant will inform the Commission of its decision and the reasons therefor.

19. Although at present there are no laws or regulations which require the Applicant to recover wastes generated by the power plant, the DOHS may request the producer of a hazardous waste that has been determined to be recyclable to provide a written statement justifying why they have not recycled the waste. The DOHS staff has indicated that no such requests will be made of the Applicant for the sulfur at this time.

20. Approximately 100 gallons per year of waste oil will result from the operation of the proposed project.

21. Waste oil will be disposed of by hauling to the Cobb-Village Chevron Service Station in Cobb Mountain, California.

22. Approximately 6 cubic yards per month of maintenance waste will be produced by the operation of the proposed project.

23. Maintenance wastes will be hauled away twice a month by a commercial collection service. The Applicant will include in its contracts with a commercial collection service requirements for the use of a suitably licensed disposal site.

24. Approximately 200 gallons per day of sewage will be produced by the operation of the proposed project.

25. The sludge from the septic tank will be removed by

a vacuum truck once every two years. This sludge will be disposed of in an appropriately licensed sanitary land fill.

26. All construction wastes will be considered the property of the contractors and will be disposed of by them offsite according to state and local regulations and ordinances. The Applicant will ensure proper construction waste disposal by complying with 22 Cal. Admin. Code §66505.

27. Liquid wastes to be disposed of consist of:

a. Stretford purge steam

b. EIC process purge steam

28. The Applicant will dispose of the Stretford purge stream by mixing the waste stream with the excess steam condensate and reinjecting the mixture in the steam reservoir. The waste stream will not be circulated through the cooling tower or discharged in any other way.

29. The Applicant will dispose of the EIC process purge stream by mixing the waste stream with the excess steam condensate and reinjecting the mixture in the steam reservoir. The waste stream will not be circulated through the cooling tower or discharged in any other way.

30. If a secondary treatment system is used to abate H_2S emissions, the plant may produce additional hazardous wastes. To ensure that these wastes are disposed of properly, the Applicant will submit its secondary abatement waste disposal plans to the CEC for review as soon as the Applicant determines that secondary abatement is required but not later than 120 days prior to commencement of operation of such secondary H_2S treatment system.

Conclusion

1. If implemented, the proposed mitigation and protection measures are adequate to ensure the lawful disposal of solid wastes generated by the Bottle Rock project.

Conditions

1. To ensure the lawful disposal of solid wastes, the Applicant will comply with the regulations specified in Findingss 3 and 4, and shall dispose of the wastes as described in Findings 18, 21, 23, 25, 26, 28, 29 and 30.

SOCIOECONOMICS

Findings

1. The Energy Commission Staff has applied the following to the Bottle Rock project:

   a. Lake County General Plan: Land Use and Scenic Highway Elements

   b. General Plan Interim Policies

   c. Conditions, Procedures and Performance Standards for Geothermal Regulations County of Lake.

   d. Lake County Zoning Code.

2. The proposed power plant site and all lands comprising the leasehold are located entirely within Lake County.

3. According to the Land Use Element of the Lake County General Plan, the leasehold is located in an "unclassified" zoning district. Section 21-10 of the Lake County Zoning Code allows for geothermal development in an "unclassified" district, subject to approval of a use permit. "On February 19, 1980, McCulloch Geothermal Inc., was granted a use permit from Lake County to drill 10 steam wells at three sites on the Francisco leasehold. This brings to 14, including four wells already drilled pursuant to prior use permits, the total number of wells needed to begin full field steam production for the Bottle Rock power plant."

4. The Conditions, Procedures and Performance Standards for Geothermal Regualtions of Lake County prohibits the drilling of any geothermal well within one-half mile of any populated area (10 or more dwelling units within a one-quarter mile area) or within one-half mile of any recorded subdivision without written consent of a minimum of 75 percent of the owners having been obtained. It further requires that any well must be drilled a minimum of 500 feet from the nearest residence.

5. No populated area nor recorded subdivision exists within one-half mile of any proposed drilling location; no residence exists within 500 feet from any proposed drilling location.

6. The proposed project is located in Cobb Valley, where the principle land uses are residential and geothermal exploration.

7. "Although the proposed project does not represent a departure from the pattern of geothermal development in the southwestern portion of the Geysers KGRA, it will be the first power plant in Cobb Valley."

8. Potential adverse impacts on the residential and recreational uses of the area include visual, noise, and odor effects.

9. The primary visual impact from the project will be on those residential and recreational areas to the east of the site. Due to the surrounding topography and vegetation, as well as the distance, the visual intrusion will be minimal.

10. The noise and odor impacts can be reduced to infignificant levels provided the Applicant implements the mitigation measures proposed in the Noise and Air Quality sections.

11. Construction of the Bottle Rock project will limit recreational opportunity within the leasehold boundary which include hunting and hiking.

12. Because hunting, hiking and fishing have been limited by the private wonership of the lands within the leasehold, a reduction or elimination of these activities due to the development of the proposed project will not be a significant impact.

13. The Scenic Highway Element of the Lake County General Plan was adopted for the purpose of preserving and enhancing areas of special scenic quality visible from designated roads.

14. Bottle Rock Road has been identified by the Scenic Highway Element as meeting the criteria of a Scenic Route. The area approximately one-half mile either side of Bottle Rock Road from Cobb to Highway 29 has been designated as a Scenic Corridor.

15. The power plant facilities and the Coleman and Francisco Well Sites will not be visible from Bottle Rock Road.

16. The Coleman West Well site may be visible from Bottle Rock Road and the Scenic Corridor described in Finding 14.

17. The significant visual impacts from the Coleman West Well site will result from the drilling derrick. Since the derrick is portable and will be erected for only a short period of time, the visual impacts will not be significant.

18. Lake County's Conditions, Procedures and Performance Standards for Geothermal Regulations states that all permanent installations and premises must be harmonious in appearance with the area, and that a landscaping screen be installed.

19. The Applicant has proposed the following mitigation measures to reduce the visual impact of the power plant facilities:

a. All engineered slopes will be revegetated;

b. All cleared areas will be reforested with trees to block the view of the plant, particularly views from the northeast;

c. A consultant will be employed to determine the most appropriate plant species for reforestation purposes at the site;

d. The power plant structures will be earthtone colors to blend with the surrounding environment.

20. A significant visual disturbance will be created by the cooling tower plume. This impact cannot be mitigated.

21. The peak work force required during the construction of the proposed power plant facilities will be approximately 80 workers.

22. The previous operations in The Geysers area have established a resident labor force in the Sonoma-Lake Counties area.

23. Based on the cumulative demand for labor from NCPA's Units 1 and 2, PG&E's Units 16, 17, and 18, the Applicant's Bottle Rock and South Geysers' projects and SMUD's Unit 1, approximately 310 new workers will be required.

24. According to Staff's analysis, construction of the proposed projects specified in Finding 23 will cause approximately 280 new residents to move into Lake County, of which approximately 90 will be childern.

25. The number of new residents anticipated to move into Lake County is sufficiently low so as not to cause an adverse impact on local housing.

26. Many of the in-migrating workers related to geothermal development have moved into the Middletown-Cobb Valley area. This area is served by the Middletown Unified School District, which has reached its enrollment capacity as of the 1980/1981 school year. Survey results indicate that much of the enrollment growth of this district appears to be caused by recent geothermal development in the area. The additional number of school age children expected to move to Lake County as a result of the Bottle Rock project is sufficiently low so as not to cause an adverse impact on the Middletown

Unified School District. However, this project may contribute to a cumulative adverse demand on educational services. The Applicant, therefore, agrees to participate in a comprehensive mitigation program involving other utilities and steam field developers, if such a program is recommended by the Commission. This effort would involve an assessment of all growth-induced impacts and identification and implementation of appropriate mitigation measures.

27. The Bottle Rock power plant itself will be state-owned and therefore will not be subject to property taxation.

28. Lake County will derive tax revenues from the development and operation of the Bottle Rock steam field.

29. The tax revenues from the steam field improvements, local agency fees, if paid, and CEC reimbursement under Public Resources Code, Section 25538 will be sufficient to offset the costs to Lake County of providing administrative and regulatory services.

30. It is anticipated that the activities associated with construction and operation of the Bottle Rock Power Plant could adversely impact Bottle Rock Road.

31. The Applicant and Lake County have agreed in writing to a proposal for the realignment and reconstruction of Bottle Rock Road. The Applicant has agreed to pay for the entire cost of the project. The Applicant will then be reimbursed by other utilities and steam developers for part of the cost as subsequent geothermal developments are sited which use Bottle Rock Road.

32. Vehicular traffic generated by project construction, operation, and maintenance will be significant source of noise, and will add traffic on the roads of the region.

Conclusions

1. The proposed project complies with applicable Lake County Land Use regulations.

2. If the Applicant implements the mitigation measures proposed in the Noise and Air Quality sections, the noise and odor impacts should be insignificant.

3. The project will not cause significant adverse impacts on existing land uses of the area.

4. The only significant visual impact of the project will be caused by the cooling tower plume.

5. The project will not cause a significant increase in the population of Lake County.

6. The project will not cause significant adverse impacts on housing and public services in Lake County.

7. The in-migrating population due to the Bottle Rock project may, however, contribute to a cumulative growth which could adversely affect educational services in the Middletown Unified School District.

8. Lake County will recover more than its costs of providing administrative and regulatory services.

Conditions

1. The Applicant shall implement the mitigation measures identified in Findings 9, 19, 27, and 32.

OFFSITE IMPACTS

Findings

1. Applicant has agreed to improve and correct deficiencies on portions of nine miles of Bottle Rock Road to eliminate excessive maintenance and to mitigate future traffic problems that might be aggravated by construction of the Bottle Rock power plant. Improvements will consist of improving the structural base and/or paving in some areas, widening and/or realigning certain segments of the road, as described in Appendix E of the Bottle Rock Revised Draft EIR.

2. The main air pollutants associated with the proposed road improvement will be dust and engine exhaust emissions. Neither of these should be generated to an extent that existing air quality in the area will be significantly affected.

3. In order to mitigate the potential impacts described in Finding 2, Applicant will:

   a. Comply with all existing rules and regulations of the Lake County Air Pollution Control District, and

   b. Minimize fugitive dust generated during construction activity by sprinkling the road with water.

4. Road construction may cause a short term increase in silt sediment loads to water courses draining the roadway.

5. In order to mitigate the potential impacts described in Finding 4, Applicant will:

a. Schedule construction activity such that earth moving activities will be completed prior to the annual rainy season. If earth moving must occur during periods of wet weather, temporary erosion protection measures will be employed to protect exposed soils.

b. Exposed cut slopes in soils will be revegetated/covered and maintained until established to protect them from erosion following construction. Revegetation will include a seed mixture of fast growing native annual herbaceaus species on all soil slopes and native drought-tolerant shrubs and trees where shrubs and trees have been removed as a result of construction. Seeds for native species shall be collected on the project site. Seeded areas shall be mulched and fertilized at the time of planting and maintained until established.

6. Potential geologic impacts include cut slope failure and failure of fill sections.

7. In order to mitigate the potential geologic impacts, Applicant will:

a. Ensure that the design of cuts and fills for Bottle Rock Road are under the supervision of a Registered Civil Engineer.

b. If necessary for construction in landslide terrain one or more of the following provisions shall be incorporated as determined by the engineer:

1. Remove landslide material and replace with engineered fills or flatten slopes where appropriate.
2. Construct subdrains to de-water landslide areas and protect engineered fills.
3. Locate cut-off ditches and other surface drainage improvements to route run-off away from landslide areas.
4. Construction of buttresses.

   Implementation of these provisions will be made in the initial improvement design and modified as required under the direction of licensed engineers and geologists when grading exposes the foundation condition.

c. Drainage design of the road will focus upon the control of seeps and springs. Energy dissipaters and collection devices to reduce the erosion force of unnatural run-off will be used if required. Existing culverts will be retained. Drainage design of new culverts will be accomplished using the following provisions:

   1. Culverts will be designed/redesigned using the California Culvert Practice manual as a guide.

2. Drainage design and specific soil erosion protection devices will be developed under the direction of a Registered Civil Engineer.

8. Potential impacts on biological resources include removal of vegetation and adverse impacts on some wildlife species. No rare or endangered species are likely to be affected.

9. In order to mitigate potential impacts on biological resources, Applicant will:

a. During construction avoid removing any more vegetation than is essential for project completion.

b. Not remove large trees or snags or cause other disturbance to valuable biological resources without consultation with CEC Staff, CDFG, and Lake County. Applicant will participate in an onsite workshop with CEC Staff, CDFG and other concerned agencies to identify the areas which could be impacted and discuss possible mitigation measures. This workshop will be conducted prior to termination of the Bottle Rock power plant Revised DEIR comment and review period.

c. Where possible, avoid construction activity on the banks of Kelsey and Cole Creeks where they are adjacent to or near Bottle Rock Road.

10. Areas near Bottle Rock Road will be exposed to the noise associated with heavy equipment and trucks involved with road construction. Residences adjacent to the road may be exposed to noise intrusions of 30 dBA to 40 dBA above the ambient during the construction period.

11. In order to mitigate the impacts described in Finding 10, Applicant agrees to implement the following measures:

a. If noise complaints result from road construction, sound level measurements will be taken to determine if noise levels are exceeding those anticipated. Construction activities that are determined to produce unacceptably high noise levels will cease until a suitable means of noise abatement is determined.

b. Construction activities in areas where excessive noise could cause complaints will be limited to daylight hours. When feasible, work will not be done on weekends, holidays, or before or after normal weekday working hours.

12. Widening and realignment will alter the appearance of segments of Bottle Rock Road by removing some vegetation and changing the appearance of some cut banks. The removal of several large trees in the northern portion of Segment 3 will significantly alter the appearance of this area of road.

13. In order to mitigate the potential visual effects described in Finding 12, Applicant will follow the provisions of Finding 5b.

14. No identifiable archeological sites were found to be located within areas of planned soil disturbances in Segments 1, 3, 5 and 6 of the proposed Bottle Rock Road Reconstruction project. No potential impact to cultural resources is foreseen in these areas at this time.

15. The archeological sites CA-LAK-907 and CA-LAK-1177 are located immediately adjacent to areas of planned soil disturbance in Segment 4 and Segment 2, respectively, of the proposed project. CA-LAK-907 is a small, relatively intact occupation site or seasonal camp, one which has the potential to yield significant amounts of scientific data. CA-LAK-1177, although subject to previous disturbance, also appears capable of yielding limited amounts of scientific data.

16. In order to mitigate the potential impacts described in Finding 15, Applicant will:

a. If feasible, limit widening along the south side of Bottle Rock Road to a corridor of no more than 20 feet in width measured from the center line. The purpose of this measure is to ensure that site CA-LAK-1177 suffers no direct impact and to provide a narrow "buffer zone" between the site and the construction activities. If the limited widening is not feasible, Applicant will consult a qualified archaeologist to evaluate the nature and extent of the potential impacts, and to formulate the necessary mitigation measures.

b. Use a qualified archaeologist to flag the limits of site CA-LAK-1177 prior to commencement of the road improvement.

c. If at all possible, limit realignment and widening of Bottle Rock Road in Segment 4 to the areas lying north of the driveway which is immediately north of site CA-LAK-907. Should it prove absolutely necessary to undertake widening or realignment of Bottle Rock Road to the south of the driveway, a qualified archaeologist will be consulted to evaluate the nature and extent of the potential impacts, and to formulate the necessary mitigational measures.

d. Ensure that additional records searches and field inspections are conducted for any road areas in the final plans not already analyzed for potential environmental impacts.

Conclusion

1. If Applicant implements the measures specified in Findigs 3, 5, 7, 9, 11, 13 and 16, impacts from the reconstruction of Bottle Rock Road will be mitigated to an acceptable level.

Condition

1. Applicant will implement the measures specified in Findings 3, 5, 7, 9, 11, 13 and 16.

SEISMIC HAZARDS

Findings and Conclusions

1. An analysis of the seismic hazards at the site is contained in "A Report on Seismic Hazard Analysis, Bottle Rock and South Geysers Power Plants", H.C. Shah, May 1980.

2. The methods used in the Shah report to evaluate the seismic hazards are adequate.

3. The proposed power plant facilities will be designed to withstand a level of earthquake shaking which has a 10 percent probability of being exceeded during a 30-year facility lifetime.

4. The 10 percent exceedance probability corresponds to a peak ground acceleration value of 0.22g.

Conclusion

1. The Shah report is acceptable as a design reference document for this project.

CIVIL ENGINEERING

Findings

1. The following law is applicable to the Bottle Rock power plant: Uniform Building Code, ICBO, 1979, as incorporated in the California Administrative Code.

2. Grading and site preparation will require the construction of fill slopes and a retaining wall.

3. The applicable standard for constructing fill slopes is contained in the UBC.

4. The fill slopes referenced in Finding 2 will be constructed no steeper than two horizontal to one vertical. The fill slope will be designed with minimum static factor of safety equal to 2.0 and a dynamic factor of safety of a minimum of 1.15 using an effective horizontal acceleration of 0.15g. A subdrain system will be placed under each fill slope, to collect seepage, if a seep or spring is encountered.

5. Construction of fill slopes as described in Finding 4 will comply with applicable provisions of the UBC.

6. The retaining wall referenced in Finding 2 will be constructed as concrete walls with rock facing and the design will follow standards set forth by the UBC.

7. Geologic investigations have indicated the presence of a shear zone under the cooling tower location.

8. After the excavation to grade and before construction of cooling tower foundation, a registered engineering geologist

shall inspect the site and recommend mitigation measures if necessary.

9. The foundations for all the major structures (e.g., turbine building, cooling towers, electrical switch yard, and hydrogen sulfide abatement facilities) will be constructed with reinforced concrete following the requirements of UBC and Building Code Requirements for reinforced concrete (ACI-318-77) by the American Concrete Institute. The bedrock upon which the Applicant proposes to place the structures is capable of supporting live load, dead load, and lateral loads (due to wind, seismic and operating equipment). The UBC requirements for reinforced concrete govern the construction of such facilities.

10. The applicable design standards for the Stretford unit berm surrounding the entire plant site referenced in Water Quality Finding 9 are contained in the "Waste Discharge Requirements for Non-Sewerable Waste Disposal to Land", California State Water Resources Control Board, January, 1978.

11. Water Quality Finding 9 demonstrates that the Stretford unit berm and the berm surrounding the entire plant site will comply with the applicable design standards contained in the waste discharge requirements referenced in Finding 10.

Conclusion

1. As proposed, the engineering design for the fill slopes, retaining wall, the Stretford unit berm, and the plant site berm, complies with all applicable laws, standards, and ordinances.

Conditions

1. The Applicant shall comply with the mitigation measures specified in Finding 8.

2. Upon completion, the Applicant shall prepare an "As-built" grading plan in conformance with the UBC for submittal to Lake County.

3. The Applicant shall reimburse Lake County for its costs of review of the grading plans which Applicant submits pursuant to Condition 2.

4. The Applicant will submit building plans (as defined in the UBC) to the Commission for review.

5. The Commission staff and Lake County Building Department may make unscheduled site inspections. Notice shall be given to the Applicant's construction headquarters the day prior to the inspection and inspectors shall check in with the Project Engineer upon arrival. Inspectors shall bring their own safety equipment.

CULTURAL RESOURCES

Findings

1. The laws applicable to the project are:

   a. National Historic Preservation Act of 1966 (16 U.S.C. 470 *et seq*).

   b. California Public Resources Code section 5097.9.

2. Cultural resources include archaeological, historical, paleontological, and ethnographic resources, including resources of educational, scientific, religious, and other significance.

3. There are five prehistoric archaeological sites within the project area: CA-LAK-605, CA-LAK-607, CA-LAK-608, CA-LAK-609, and CA-LAK-610, and one historical site: CA-LAK-974.

4. Sites 605, 609, and 610 meet the criteria for inclusion in the National Register of Historic Places.

5. Site 605 lies within the steam field but outside the proposed steam development area. No impact is anticipated.

6. Site 609 lies close to the access road and could be adversely affected by any road improvement or by steam line construction. The steam supplier has erected a fence around a portion of site 609 to restrict access to it.

7. Site 610 has been adversely impacted by road use. Any road improvement will destroy the integrity of this site. The Applicant has developed a systematic archaeological recovery program for site 610 acceptable to CEC staff.

8. There are known places within the project area where paleontological resources exist. The impact from construction and operation of the proposed project will not destroy these known paleontological resources.

9. There are no significant ethnographic or ethnohistoric sites in the project area.

10. The Applicant's archaeologist will provide archaeologic observance training to the construction inspectors. In addition, a qualified archaeologist will inspect the plant site twice a week during stripping and clearing activities, and will be available at all other times. If any cultural resources are discovered during land alteration activities, the Applicant will cease any portion of such activities affecting the resources and notify the Commission staff within 48 hours of discovery.

11. If the onsite archaeologist determines that the discovered resource is significant, the Applicant and Commission staff will meet within seven days of such discovery with the State Office of Historic Preservation to determine an appropriate mitigation plan. If the Applicant, Staff, and State Office of Historic Preservation cannot reach agreement on an appropriate mitigation plan within 10 days of the discovery, the matter will be referred to the Commission for resolution. The Commission shall render a decision within 20 days. Construction activity affecting the resource shall remain stopped until a decision is made and for a reasonable period

thereafter to allow implementation of any mitigation measures to protect or salvage the resource.

Conclusions

1. The proposed facility will not adversely affect any identified paleontological, archaeological, or historical sites protected by Public Resources Code section 5097.9.

2. The proposed facility will not adversely affect any archaeological sites eligible for inclusion in the National Register of Historic Places if the Applicant complies with mitigation measures specified in Findings 7, 10, and 11. Therefore, the proposed project will comply with 16 U.S.C. 470, et seq .

Condition

1. The Applicant shall implement the mitigation measures specified in Findings 7, 10, and 11.

SAFETY

Findings

A. Fire Safety

1. The following laws are applicable to the Battle Rock power plant:

a. Fire-resistive design and construction techniques and recommended materials of construction as specified in the Uniform Building Code (UBC, 1979 Edition) Chapters 5, 20, 32, and 33.

b. General Industry Safety Orders for the handling and storage of flammable liquids as specified in Title 8, California Administrative Code (CAC), Chapter 4.7, Group 20.

c. Public Resources Code section 4291 which requires the establishment of firebreaks around buildings or structures on lands covered with flammable material.

d. Federal Occupational Safety and Health Act of 1970 (same as Title 8, CAC).

e. General fire safety standards applicable to all buildings owned or occupied by the State of California, found in Title 19, CAC.

In addition, the following industry consensus standards issued by the National Fire Protection Association (NFPA) are applicable to the on-site fire protection system:

a. Standards (Stds.) 10, 12, and 13; Water Portable Fire Extinguishers, CO_2 Systems, Sprinkler Systems.

b. Stds. 15, 19E, 20, 24, 194, and 196; Spray Fixed Systems, Respiratory Protective Equipment, Fire Hose, Centrifugal Fire Pumps, Outside Protection.

c. Std. 43A; Storage of Liquid Oxidizers.

d. Std. 50A - Hydrogen Gas Systems.

e. Std. 58; Storage and Handling of LP-Gases.

f. Std. 70; Wiring not related to the generation of electrical power.

g. Stds. 72E and 80; Automatic Fire Detectors, Fire Doors and Windows.

h. Std. 90A; Air Conditioning and Ventilating Systems.

i. Std. 214; Water Cooling Towers.

j. Stds. 13A, 26, 198; Sprinkler Systems, Valves, Fire Hose Maintenance.

k. Std. 49; Hazardous Chemical Data.

2. Key power plant components which must be protected from fire include the turbine-generator unit (bearings), lube oil system, lube reservoirs, cooling towers, and transformers. In addition, principal sources of combustion include generator coolant (hydrogen gas) and the hydrogen peroxide in the storage tanks.

3. The Applicant has proposed an on-site fire protection system including the following features:

a. Automatic water sprinklers installed above the turbine lube, hydraulic and seal oil reservoirs,

generator seal, oil unit, and in the cooling tower.

b. Automatic CO_2 purge in the oil purification room.

c. Carbon dioxide gas purge for the generator.

d. Automatic water-spray deluge system for transformers.

e. Fire hose stations, manually operated fire extinguishers placed at various yard locations, in the turbine building, and on the cooling tower deck.

f. Water will be taken from the cooling tower basin by three pumps, each sized for full expected fire flow. Two pumps will be driven by electric motors and the third by a standby diesel generator.

g. All lube oil storage and oil filled equipment will be surrounded by impermeable berms.

4. A registered fire safety engineer or the Applicant's fire insurance company shall file with the CEC, prior to the commencement of commercial operation of the project, an affidavit stating that the design, construction, and anticipated operation of the on-site fire protection system conforms with standards and regulations referred to in Findings 1.a, 1.c, and 2.

5. The Applicant shall make the Bottle Rock facility available for inspection by safety personnel designated by the

CEC. CEC staff shall give notice of a fire inspection not less than 24 hours prior to such inspection.

6. The California Division of Forestry, the Middletown Fire District, and the Kelseyville Big Valley Fire District have responsibility for off-site fire protection. The Applicant is in the process of completing mutual aid agreements for fire protection with these agencies.

7. The Applicant shall submit a copy of the final mutual assistance agreement that is reached between the respective parties. If the agreement is necessary to complete the facility's overall fire protection program, it shall be filed prior to plant construction. If it is not necessary to complete the program, the copy of the agreement shall be filed prior to commercial operation of the facility.

Conclusions

1. Implementation of the measures described in Finding 3 will ensure that reasonable on-site protection will be provided.

2. With the implementation of the requirements of the mitigation measures specified in Findings 4 and 6, compliance with standards for on-site fire protection will be assured.

3. With the implementation of the mitigation measure described in Finding 7 above, reasonable compliance with standards for off-site fire protection will be assured.

Conditions

1. The Applicant shall undertake the mitigation measures for on-site fire protection specified in Findings 4 and 5.

2. The Applicant shall undertake the mitigation measures specified in Finding 7 for off-site fire protection.

in Finding 2 will minimize to an acceptable level the risk to health and safety posed by these chemicals and compounds.

5. The propane will be stored in a tank that conforms to design requirements contained in Title 8, CAC, Chapter 4.1.

6. Hydrogen gas will be stored in its original shipping cylinder which is approved by the Federal Department of Transportation.

7. The Applicant has proposed high purity aluminum alloys for hydrogen peroxide storage tanks. The specific alloys listed by the Applicant are consistent with those recommended by the Manufacturing Chemists Association in Chemical Safety Data Sheet SD-53. Additional storage and handling precautions contained in section 5204, Title 8, Cal. Admin. Code will be used to ensure a safe working environment.

8. Stretford H_2S abatement chemicals (Vanasol, ADA, and $NaHCO_3$) will be delivered and stored in a dry powder form before being used. These chemicals will be used in unfired pressure vessels and storage tanks designed to the ASME Boiler and Pressure Vessel Code which has been adopted by the California Department of Industrial Relations, Division of Occupational Safety and Health under Title 8, Chapter 4.1 CAC.

9. An alkali that may be substituted for $NaHCO_3$ is sodium hydroxide (NaOH). If NaOH is used in the Stretford process, the Applicant will adhere to container specifications prescribed in 49 C.F.R. 173.249 and handling precautions in section 5162, Title 8, Cal. Admin. Code.

10. If carbon dioxide, used to purge rooms of oxygen in event of a fire, is stored in cylinders, the Applicant will comply with Article 76, Title 8, Cal. Admin. Code.

11. Ammonia will be used in the EIC process. Storage of this gas under pressure requires tanks designed and constructed according to Chapter 4.1, Title 8, Cal. Admin. Code. Handling of this gas will comply with Article 107, Title 8, Cal. Admin. Code.

12. Copper sulfate ($CuSO_4$) will also be used in the EIC process. If $CuSO_4$ is stored as a liquid, it will be stored in tanks designed and constructed to Chapter 4.1, Title 8, Cal. Admin. Code. Handling of $CuSO_4$ will be according to regulations in Article 107, Title 8, Cal. Admin. Code.

13. Storage and process tank design will utilize the method described in the Tri-Services Manual to account for dynamic fluid forces.

14. The EIC process tanks and/or pressure vessels will be designed and constructed according to standards in Chapter 4.1, Title 8, Cal. Admin. Code.

15. To prevent accidental spills of flammable and hazardous substance due to seismic shaking, the Applicant proposes to design equipment anchorages and tiedowns to resist forces equal to 0.5g lateral and 0.3g vertical. Using this criteria, the equipment should resist a Maximum Credible Earthquake. Additionally, the Applicant proposes to use design methods contained in NBS-SP-510 (same as ATC 3-06)..

16. An effective method to ensure that the Applicant's storage tanks and pressure vessels comply with the relevant design codes, excluding structural design provisions which are

addressed under Structural Engineering, is to require the Applicant to submit to the Commission the following documents:

a. An affidavit signed by a registered civil, mechanical, or industrial engineer and stating as follows:

(1) Stretford system and EIC system pressure vessels and liquid petroleum gas tanks have been designed, constructed and installed in accordance with Title 8, California Administrative Code (CAC) and the Tri-Services Manual, and anchored in accordance with ATC-3-06, section 8.3 or to a more stringent criterion.

(2) EIC system and Stretford system tanks have been designed, constructed, and installed in accordance with American Petroleum Institute (API) Standard 650 and the Tri-Services Manual, and anchored in accordance with ATC-3-06, section 8.3 or to a more stringent criterion.

(3) Lube oil storage tanks are designed and constructed according to article 145, Title 8, Cal. Admin. Code and anchored according to ATC-3-06, section 8.3 or to a more stringent criterion.

(4) Hydrogen and oxygen systems are installed according to articles 138 and 139, Title 8, Cal. Admin. Code.

(5) Ammonia and CO_2 gas are stored according to articles 107 and 76, Title 8, Cal. Admin. Code.

(6) All storage bins and cylinder anchorages for flammable and hazardous substances are designed and constructed to an ELF of 0.5W.

b. Copies of certified code papers for pressure vessels or storage tanks required to be designed to the ASME Boiler and Pressure Vessel Code.

17. The Applicant will adhere to the General Industry Safety Orders in Title 8, CAC that prescribe safe handling practices for flammable and hazardous substances. Plant personnel will be required to wear protective clothing (eye protection, aprons, head protection) when working with those substances. The Applicant will install wash and safety shower stations in all work areas in which flamable or hazardous materials are stored or handled. A water purge system for rapid dilution of H_2O_2 will be installed.

Conclusions

1. If the Applicant stores the substances as described in Findings 5, 6, 7, 8, 9, 10, 11 and 12, it will comply with the applicable laws, standards, and ordinances identified for handling and storage for these materials.

2. If the Applicant designs, fabricates, and constructs the various storage tanks and pressure vessels as described in Finding 8, 13, 14 and 15, submits the documents required in Finding 16, and implements the measures specified in Finding 17, plant personnel and the general public will be adequately protected from the hazards posed by the handling and storage of materials listed in Finding 3.

Conditions

1. The Applicant shall store hazardous, toxic and flammable materials as described in Findings 5, 6, 7, 8, 9, 10, 11 and 12.

2. The Applicant shall design, construct, and install storage tanks and pressure vessels as described in Findings 8, 13, 14 and 15.

3. The Applicant shall submit the documentation in Finding 16.

4. The Applicant shall implement the measure in Finding 17.

C. Worker Safety

Findings

1. The following laws are applicable to the Bottle Rock power plant:

a. Title 8, Cal. Admin. Code, Section 1509.

b. Title 8, Cal. Admin. Code, Section 3203.

2. The Applicant has proposed a worker safety/accident prevention program which is decribed in detail in the Applicant's Administrative Manual. Section 3800 et seq, the Division of Operation and Maintenance Safety and Training Instruction Series, and Division of Operations and Maintenance Safety Rules Manual. The primary elements of the Applicant's Accident Prevention Program are:

a. Training of all employees in safety consciousness and safety habits.

b. Training in identifying hazardous conditions and unsafe practices.

c. Conducting formal and informal ("tail gate") safety meetings.

d. Enforcement of established safety and health standards and orders.

e. Periodic inspections of work sites and facilities will be conducted not less than twice annually to identify and correct unsafe conditions and work practices.

f. A project safety engineer will be assigned to be responsible for the safety practices of both department and contractor employees.

g. Protective clothing, such as for eye protection and head protection, will be employed when necessary.

h. Contractors will be required to submit to the Applicant a written program for accident prevention subject to review and revision by the Applicant.

3. The California Department of Industrial Relations, Division of Occupational Safety and Health (DOSH) monitors plant construction in response to worker complaints about unsafe conditions or practices. If a complaint is received, DOSH inspectors will make a site inspection and investigate the complaint. DOSH may issue a citation with recommended corrective actions and/or an order to cease plant operations until such actions are completed.

4. The Applicant has agreed to request the State Division of Occupational Safety and Health's (CAL-OSHA) Consultation Service to review its accident prevention program for compliance with the requirements of Title 8, CAC, Section 1509 and 3203.

5. The CAL-OSHA Consultation Service has agreed to review the accident prevention program proposed by the Applicant.

6. The Applicant shall submit to the Commission, not later than 150 days prior to the operation of Bottle Rock, a letter from the CAL-OSHA Consultation Service or CAL-DOSH verifying compliance with the Title 8 section 3203 requirements.

7. If a disagreement arises between the Applicant and CAL-OSHA Consultation Service that cannot be mutually resolved, the Applicant may petition the Commission to hear the dispute. The Commission shall issue a decision within a reasonable time period not to exceed 45 days of receipt of the petition.

8. In the event of a safety violation as determined by DOSH, the Applicant shall notify the Commission of the infraction and the necessary corrective action. The Commission reserves the right to review any citation issued and to evaluate the adequacy of corrective actions ordered by DOSH.

Conclusion

1. If the Applicant complies with Finding 6, the proposed project will comply with the applicable standards relating to worker safety.

Condition

1. The Applicant shall comply with the provisions of sections 1509 and 3203, Title 8 of the Cal. Admin. Code and

shall ensure such compliance by performing the acts specified in Findings 4, 6, 7, and 8 above.

STRUCTURAL ENGINEERING

Findings

1. The Applicant will design and construct the proposed Bottle Rock power plant and its related facilities in accordance with:

a. DWR Bottle Rock AFC, Section IV.D. (entitled, "Seismic Performance Criteria", revised May 22, 1980), Appendix A (Part III, entitled, "Structural Design and Construction Policy", revised May 22, 1980, and Part IV, entitled, "Power Plant Facility Structural Design Criteria", added May 22, 1980), and Appendix B (entitled, "A Report on Seismic Hazard Analysis, Bottle Rock and South Geysers Power Plants", by Dr. Haresh C. Shah, dated May 1980).

b. Applicant's responses (dated November 5, 1979) to Staff Interrogatories.

c. Record of telephone conversation, Gaylon Lee (CEC) and Dale Martfeld (DWR), July 21, 1980.

d. Uniform Building Code, 1979 Edition (UBC 79), excepting Section 2312. (Note: UBC 79 is scheduled to be adopted under Title 24, California Administrative Code (CAC) as the minimum state building standard.)

e. American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME BPV Code). (Note:

ASME BPV Code is adopted by Title 8, CAC.)

f. American National Standards Institute, "B 31.1 Power Piping Code" (ANSI B 31.1).

g. American Concrete Institute (ACI), "Building Code Requirements for Reinforced Concrete" (ACI 318-77).

h. ACI "Building Code Requirements for Structural Plain Concrete" (ACI 322-72).

i. ACI, "Commentary on Building Code Requirements for Reinforced Concrete" (ACI 318C-77).

j. American Institute of Steel Construction (AISC), "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings" (AISC CSDFESS 78).

k. AISC, "Commentary on the Specifications of the Design, Fabrication, and Erection of Structural Steel for Buildings" (AISC CSDFESS 78).

l. AISC, "Specification for Structural Joints Using ASTM A325 or A490 Bolts", April 1978 (AISC SST 78).

m. American Welding Society, "Structural Welding Code AWS D1.1-79" (AWS D.1.-79).

n. American Welding Society AWS D12.1-75, "Reinforcing Steel Welding Code".

o. "National Design Specification for Stress-Grade Lumber and Fastenings, 1977" (NDS 77).

p. "Timber Construction Standards", AITC-100, American Institute of Timber Construction, 1972.

q. American Iron and Steel Institute (AISI), "Specifications for the Design of Light Gauge Cold Formed Steel Structural Members" (AISI SDLCFSS).

r. Steel Joist Institute, "Standard Specifications and Load Tables" (SJI SSLT).

s. American Association of State Highway and Transportation Officials, "Standard Specifications for Highway Bridges", 1977 edition (AASHTO BRIDGE 77).

t. Structural Engineers Association of California (SEAOC), "Recommended Lateral Force Requirements", 1975, Recommendations and Commentary (SEAOC Recommendations and Commentary).

u. Cooling Tower Institute, "CTI Code Tower, Standard Specifications for the Design of Cooling Tower with Douglas Fir Lumber", October 1974 (CTI).

v. Departments of the Army (TM 5-009-10), the Navy and the Air Force, "Seismic Design for Buildings", Section 9 excepting subsection 9-06), April, 1973.

2. In the case of discrepancies between the criteria contained in Finding 1, subparts (a) through (c) and the criteria contained in Finding 1, subparts (d) through (v), the Applicant shall use the highest design criteria in the final design of the facility.

3. The Applicant will use the Applied Technology Council, "Tentative Provisions for the Development of Seismic Regulations for Buildings", ATC 3-06, 1978 (NBS-SP-510), as a guide in the design of Bottle Rock power plant and related facilities.

4. For other than seismic loads, the Applicant will use UBC 79 structural design criteria (augmented as necessary by special live loads) and structural analysis methods.

5. The Applicant will design and construct the Bottle Rock power plant and related facilities to withstand a Design Earthquake (vibratory ground motions having a 10 percent probability of being exceeded during a 30-year facility lifetime) with minor structural damage and uninterrupted power generating capacity, and to withstand a Maximum Possible Earthquake (vibratory ground motion having a five percent probability of being exceeded during a 30-year facility lifetime) with no structural collapse and damage repairable within 12 months.

6. The Applicant will design and construct the Bottle Rock power plant and its related facilities to withstand seismic loads indicated by the site response spectra shown as Figures 32 and 35 of the AFC, Appendix B (revised May 1980), corresponding to the Design Earthquake (ten percent damping with a ductility of 1.0) and Maximum Possible Earthquake (10 percent damping with a ductility of 2.0) respectively.

7. For seismic design of critical structures and components, the Applicant will perform dynamic analyses using

appropriate computer programs, such as STRUDL, SAP IV, TABS, or STRESS and incorporating the site seismic response spectra set forth herein, (Critical structures include the Turbine-Generator Building, H_2S Control and Chemical Buildings, Switchyard Support Structures, Cooling Tower, and Transmission Towers).

8. In lieu of the dynamic analysis, the Applicant may use the Equivalent Lateral Force (ELF) method of seismic analysis as set forth in UBC 79, SEAOC Recommendations and Commentary, and ATC 3-06 with base shear of 0.28W for all structures except the Turbine-Generator Building, the Cooling Tower and the Stretford absorber column (H_2S Abatement).

9. The Applicant will specify and use design stresses for the proposed wood Cooling Tower structure for the Design Earthquake in accordance with the applicable codes in the Findings, and for the Maximum Possible Earthquake will specify and use design stresses not more than twice those for the Design Earthquake.

10. The Applicant will design and construct anchorage of critical equipment to withstand a minimum force of 0.5W recognizing the dynamic properties of the structure. In any event, the anchorage criteria shall be consistent with other design and performance criteria.

11. The Applicant will design piping, valves and anchorages to withstand equivalent static loads (ESL) in accordance with ANSI B31.1. The ESL shall be consistent with other seismic design criteria.

12. The Applicant will design tanks and anchorages containing toxic or hazardous substances to an ELF of 0.5W.

13. In the case of discrepancies between the criteria and methods set forth in Findings 1, 5, 6, 7, 8, 9, 10, 11, and 12, the Applicant will use the highest calculated loads in final design of the facility.

14. The Applicant will design noncritical structures and anchorages for noncritical equipment using seismic design criteria specified in UBC 79, with a base shear coefficient of 0.5W or more.

Conclusions

1. The seismic and nonseismic design criteria and analysis methods for critical and noncritical equipment and structures specified or referred to in the Findings provide an acceptable level of safety and reliability for the Bottle Rock power plant and its related facilities and will likely achieve the Applicant's performance criteria.

2. Although a final determination of compliance with applicable laws and standards cannot be made until after preparation and submittal of final design plans and specifications (which will occur after the AFC Certification), if the Bottle Rock power plant and its related facilities are designed as specified by the Findings, the design of the unit will likely comply with applicable laws and standards with respect to structural engineering and seismic safety.

3. In order to ensure compliance with the approved performance criteria, design criteria analysis methods and with applicable standards, the Applicant will submit final plans, specifications, and substantial[1] change orders for review; also construction inspections will be performed to ensure conformance of the work with the final plans, specifications, and change orders pursuant to the procedures described in Conditions 1 through 6.

Conditions

1. The Applicant shall demonstrate in the final design plans and specifications conformance with the criteria and requirements set forth in the Findings. Final plans, as used herein, are the plans upon which the construction will be based (e.g., used for bid purposes). The Applicant shall certify to the CEC that the final plans and specifications conform to the requirements listed in the Findings.

2. The Applicant shall submit plans and specifications for review in accordance with the following procedures:

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[1] Substantial changes in facility design would include all changes which required an alteration in design concept and consequently, the preparation of new design calculations. For example, if newly discovered geologic conditions were encountered which would require the cooling tower basin foundation to be thickened by one foot, this condition would be reflected in the As-built drawings since the facility design change will be considered minor. However, if newly discovered geologic conditions were encountered which required the foundation to be deepened by two or three feet or redesigned as a network of pier foundations, these conditions would be substantial and promptly brought to the attention of the Commission.

a. The Applicant shall furnish two sets of preliminary plans and specifications to both the CEC and to the Lake County Chief Building Official (CBO) for review and comment concurrently with the Applicant's staff review process.

b. The Applicant shall furnish two complete sets of final structural design plans and specifications for each structure and structure foundation to the CEC and CBO, respectively, as per the memorandum of understanding between the Applicant and the County. At least 30 days prior to intended filing date for such plans, the Applicant will notify the CBO and CEC of the intended filing. The final plans and specifications shall be filed not later than 75 days prior to the intended date of bid opening and shall be developed using the approved structural design criteria, structural analysis methods, seismic performance criteria, seismic design criteria, and seismic analysis methods. The plans and specifications shall reflect the inclusion of approved criteria, assumptions, and methods used to develop the design, and for the Turbine-Generator Building, Cooling Tower, and Stretford Absorber Column, shall include design calculations. The CEC will review the submittals to determine conformance with the criteria and standards set forth in these findings.

c. The Applicant's proposed final plans shall be deemed acceptable as to the requiements outlined in the Findings by the CEC unless the Applicant is notified otherwise in writing within 60 days of receipt by CEC of such plans.

3. The Applicant will file with the CEC any substantial changes to the final plans and specifications, and will notify the CEC at least 15 days in advance of intended filings of such change orders. The Applicant's proposed change orders will be deemed acceptable as to the requirements outlined in the Findings unless the Applicant is notified otherwise in writing within 30 days of filing with CEC.

4. The Applicant shall provide through its Construction Office a staff of field engineers and inspectors to monitor conformance with the accepted final plans, specifications, and change orders. Field engineers and/or inspectors will be present on site at all times to monitor construction activities and will have the authority to require changes or remedial work to construction and to halt construction in the affected area until the work conforms with the applicable requirements. The CEC staff or its agent may, upon reasonable notice, inspect the construction at any time to ensure that construction conforms to the accepted final plans, specifications, and substantial change orders.

5. In the event that the Applicant is notified that the Applicant's proposed final plans, specifications, or change orders are not acceptable to the CEC staff, the Applicant will not proceed with the work described in those documents until such time as the alleged deficiency is resolved. The Applicant will modify the plans, specifications, or change orders as necessary according to the agreed upon resolution. Should the Applicant believe that the requirements of the CEC staff are infeasible or unreasonable, the Applicant may appeal the decisions of the CEC staff in accordance with the procedures set forth in the generic Compliance/Monitoring program.

6. In the event that UBC 1979 is not adopted prior to construction by the state (under Title 24 CAC), the Applicant will demonstrate that facility design conforms with the requirements of UBC 1976.

NOISE

Findings

1. The CEC Staff has applied the following to the project:

   a. Lake County Noise Element;

   b. 8 Cal. Admin. Code, Article 105 (State Occupational Noise limits);

   c. 8 Cal. Admin. Code, Chapter 3.29 (Procedures and Sanctions); and

   d. Occupational Safety and Health Act of 1970 (Federal Occupational Noise Limits).

2. Lake County has adopted a noise element to its general plan. The intent of the Lake County noise element is to limit the ambient noise levels at sensitive receptors to 55 dBA Ldn. Lake County currently established noise limits by placing conditions in the use permit. The most recent permits establish a standard of 55 dBA Ldn at a sensitive receptor. Certain construction activities, such as the movement of heavy equipment during daylight hours, are exempt from the noise standards. Lake County has issued a proposed draft noise ordinance. The date of adoption, content and form of the ordinance, are presently uncertain.

3. The state occupational noise limits are established in Title 8, California Administrative Code, Article 105. The provisions of CAL-OSHA are enforced by the Division of Occupational Safety and Health (DOSH) of the Department of Industrial Relations, insofar as these provisions relate to construction and operational employee noise hazards. The procedures and sanctions specified in Chapter 3.29 of Title 8 of the California Administrative

Code apply to violations of the provisions of Title 8, California Administrative Code, Article 105.

4. The Federal Occupational Noise Standards, set by the Occupational Safety and Health Act of 1970, are basically the same as CAL-DOSH standards.

5. The ambient noise levels at sensitive receptors in the vicinity of the site are presented in the NOI in Tables 1-5 of the Noise Section.

6. The two closest identified sensitive receptors are located approximately 2,000 feet to the northeast of the Bottle Rock plant site. Based upon the estimated facility operational noise level of 60 dBA at 500 feet, the projected noise level to these receptors would not exceed any of the applicable standards. The projected operating noise level would also not exceed the standards to other identified sensitive receptors which are further than 2,000 feet.

7. The typical frequency spectrum data for geothermal units at the Geysers is shown in the Noise Section of the NOI, pages 18-24. Certain tonalities from the steam jet ejector, cooling tower and turbine generator are expected to be discernible at the plant, but through the implementation of mitigation measures, molecular absorbtion and the barrier effect of the turbine generator building, it is expected that these tonalities will be barely audible out-of-doors at the sensitive residential receptors. This should not be considered an adverse noise impact.

8. The Applicant proposes to implement the following noise mitigation measures:

a. The steam jet injector located on the outside of the turbine-generator building will have lagging installed on its exterior surface consisting of mineral wool and an impervious membrane (aluminum and/or lead jacket);

b. Combined thermal and sound insulation will be installed on the exterior surfaces of the steam turbine which reduces the noise inside the turbine building;

c. The concrete walls and roof of the turbine building will provide an effective barrier to noise propagation to the outside from the electro-mechanical equipment within the building;

d. An enclosed and accoustically insulated office space will be installed within the turbine/generator building;

e. Steam drain lines will be routed back to the condenser so that steam will not be vented to the atmosphere during plant start-ups;

f. During outage conditions, steam will be vented through a rock muffler or its equivalent installed and operated by the steam supplier. Use of a rock-filled muffler would mitigate the most serious noise impact potential of the project;

g. Equipment suppliers will be encouraged to supply mechanical equipment which produces a sound level no greater than 80 dBA at 3 to 5 feet from the boundaries of the device;

h. All project employees and contractors will be

required to comply with the current provisions of Cal-OSHA for hearing conservation.

9. The highest plant construction noises will be caused by large earth moving equipment. Noise associated with this equipment will be discernible to some of these receptors. However, the activity will be temporary in nature and performed during daylight hours whenever possible.

10. Representative lists of typical noise sources and levels associated with steam supply activities are set forth in the Environmental Impact Report for Union Oil, Unit 17 (December 1977) and Union Oil Simplified Noise Model, Unit 17 Geothermal Development Area (March 1978).

11. The nearest receptor to a well pad is approximately 0.3 miles away.

12. The projected noise levels of production well testing with portable test mufflers, steam transmission lines start-up via unmuffled well head venting and well head master valve changes will be significant noise sources and will be discernible to sensitive receptors in the site vicinity. However, these three events occur infrequently. The noise, other than the above three associated with the steamfield development and production, will be barely audible to audible at the nearest sensitive receptor. Noise from steamfield development will be less noticeable to receptors farther away.

13. The effects from the steamfield development generally exceed plant construction and operation noise levels. The cumulative impacts of these two noise sources will not increase the impact on the receptors over the noise levels associated with the well development operation noise levels.

14. The rock muffler or equivalent system mentioned in Finding 8(f) should reduce noise during periods of steam stacking to an inaudible level at the closest receptors at the power plant.

15. To verify compliance with standards for the protection of the employees from noise impacts, a noise evaluation as required by Title 8, Cal. Admin. Code, Article 105, will be performed by the Applicant to determine the magnitude of employee noise exposure. The results of the evaluation shall be available to the Commission within 180 days of the time that the facility has reached its rated power generation capacity and construction is complete. The results of the noise survey will be maintained by the Applicant and will be made available to DOSH or CEC upon request.

16. Consistent with the policy set forth in the Lake County Noise Element, the Applicant will undertake the following measures within 90 days after the plant reaches its rated power generation capacity and construction is complete. The Applicant will conduct noise surveys at 500 feet from the generating station and at the nearest sensitive receptor:

a. The survey shall cover a 24-hour period during which the plant is operating;

b. Results of the survey shall be reported in terms of L_x, L_{eq}, and L_{dn} levels;

c. The Applicant will provide a report of the survey to the Energy Commission and Lake County. If the report indicates that the County's guidelines are being exceeded the report will contain a mitigation plan and a schedule to correct the inconsistency;

d. The Applicant need not provide any additional noise surveys or reports of the off-site operational noise of the plant unless the public registers complaints or the noise from the project is suspected of increasing due to change in the operation of the facility.

17. In the event that the Applicant receives public complaints of the noise due to construction, the Applicant will immediately conduct an investigation to determine the extent of the problems. The Applicant will take reasonable measures to resolve the complaint.

18. In the event that the Applicant is informed that public complaints have been registered with a public official or agency and the Applicant fails to resolve the problem, the Applicant will so inform the Lake County Planning Department and the Commission. If requested by the Department and the Commission, Applicant will perform the monitoring procedures outlined below:

a. Conduct noise surveys at the sensitive receptors registering the complaint and at the facility property line nearest the complaining receptors. Surveys shall be taken for the period of the construction working day and under similar circumstances that the complaints were registered. The surveys should be reported in terms of the L_x and L_{eq} levels;

b. Notify Lake County and the CEC of the results of the survey, of the public complaints, of the feasible mitigation measures which the Applicant has applied to resolve the impact, and the

results of the mitigation plans.

Conclusions

1. If the mitigation measures specified in Finding 8 are implemented, power plant noise levels during normal operations will be consistent with the guidelines of the Lake County Noise Element and will be in compliance with requirements of CAL-DOSH and federal standards.

2. If the mitigation measures specified in Finding 8(f) are implemented, noise levels during periods of steam stacking will be consistent with the guidelines of the Lake County Noise Element and will be in compliance with requirements of CAL-DOSH and federal standards.

3. Noises caused by steamfield operations will be generally discernible during events described in Finding 12 but such noises are within the tolerable range.

4. Noises caused by construction of the power plant and related facilities may be discernible to some of the receptors closest to the power plant site but will be consistent with the guidelines of the Lake County Noise Element and will be in compliance with CAL-DOSH requirements and federal standards. If the Applicant limits the use of earth moving equipment to daylight hours, the noises caused by plant construction will be tolerable to local receptors.

Condition

1. The Applicant shall implement the measures specified in Findings 8, 9, 15, 16, 17, and 18.

PUBLIC HEALTH

Findings

General

1. Bottle Rock power plant will emit pollutants which can be adverse to human health when present in sufficient concentrations. These pollutants include: regulated pollutants (pollutants for which there are ambient air quality standards or emissions standards) such as hydrogen sulfide (H_2S), sulfur dioxide, particulate matter, sulfates, and radon-222 (^{222}Rn); and nonregulated pollutants (pollutants for which there are presently no standards) such as mercury, arsenic, boron, and ammonia. Hydrogen sulfide abatement systems can result in the emissions of anthraquinone disulfonic acid (ADA), vanadium, copper, sulfates, and other particulate matter. The severity of health impacts from these pollutants depends upon the concentration, length and frequency of exposure, and sensitivity of the individuals exposed. Particularly sensitive individuals include children, the elderly, and the infirm.

2. Ambient air quality standards and emission standards are based upon protection of public health and/or protection against public nuisance (e.g., odor and visibility). Where resultant ambient concentrations of regulated pollutants from Bottle Rock will not cause a violation of these standards, it is likely that adverse health impacts will not be significant.

Applicable standards for regulated ambient pollutants are listed in the Bottle Rock Revised Draft EIR, Public Health Section.

3. Some potentially hazardous pollutants are not presently regulated by ambient air quality standards. Federal agencies and other research groups have funded studies which suggest safe levels of these pollutants in ambient air. These suggested levels can be used as a guide for assessing the potential for public health impacts.

4. The maximum expected emission rates of pollutants from the Bottle Rock power plant based upon data provided by the Applicant are as follows:

Pollutant	Maximum Expected Emission Rates	
Steam Contaminants		
hydrogen sulfide (unabated)	600	lbs/hr
ammonia	208	lbs/hr
mercury	0.64	lbs/hr
arsenic	< 0.005	lbs/hr
boron	7.5	lbs/hr
radon-222	65 mCi/hr.	
Abatement System Chemicals		
anthraquinone disulfonic acid (ADA)	0.005	lbs/hr
vanadium	0.01	lbs/hr
sodium carbonate	0.06	lbs/hr

sodium sulfate	0.25	lbs/hr
sodium thiosulfate	0.55	lbs/hr
copper	0.00035	lbs/hr

Actual emissions of each of these pollutants will depend upon, among other things, the design and the effectiveness of abatement equipment, the cooling tower drift rate, and the chemical interactions among pollutants.

5. The LCAPCD is presently conducting well tests to determine ammonia and H_2S in the steam supply. The maximum values listed in Finding 4 may be modified as a result of these tests.

Regulated Pollutants

6. Concentrations of ^{222}Rn in the atmosphere at The Gyesers KGRA were measured by Lawrence Livermore Laboratory for PGandE in 1975-1977 when Units 1-11 were operational. The highest recorded ^{222}Rn concentrations were 0.5 pico Curies per liter in air at Geysers Units 1 and 2, and 1.4 pico Curies per liter in air at the SRI Station 7 (Sawmill Flat).

7. Emissions of ^{222}Rn from Bottle Rock are not expected to exceed ^{222}Rn emission standards.

8. Pursuant to Section 25607 of the California Health and Safety Code, the California Department of Health Services Radiologic Health Section (RHS) currently requires periodic monitoring of ^{222}Rn concentrations in incoming steam of

geothermal power plants to verify compliance with applicable standards and to provide input into the RHS multiple source modeling study investigating the cumulative impacts of ^{222}Rn.

9. The Applicant will implement a ^{222}Rn monitoring program mutually acceptable to RHS/DOHS, CEC Staff, LCAPCD and Applicant. This program will be described in the Bottle Rock Compliance and Monitoring Report.

Nonregulated Pollutants

10. Total exposure of receptors to ammonia, arsenic, boron, mercury, vanadium, ADA, and copper includes existing ambient concentrations (baseline) in combination with incremental concentrations from Bottle Rock and other future sources. Information regarding existing ambient concentrations of these elements and compounds is very limited. Therefore, characterization studies of emissions and existing ambient air concentrations must be performed if the public health effects of Bottle Rock emissions are to be assessed. The rationale for performing these studies is described in the Bottle Rock Revised Draft EIR, Public Health Section.

11. Applicant agrees to perform an analysis on incoming steam for Bottle Rock similar to those to be performed for Geysers Units 16, 17 and 18. This program will be described in the Compliance Monitoring Report to be developed jointly by the Applicant and Staff.

12. Applicant agrees to perform theoretical mass balance estimates for mercury, arsenic, ammonia, and vanadium for the Bottle Rock power plant to estimate the percent of incoming pollutants being emitted. These estimates will be combined with Bottle Rock steam analyses to predict Bottle Rock emissions of mercury, arsenic, ammonia, and vanadium.

13. Applicant agrees to perform baseline ambient measurements for mercury, arsenic, ammonia, and vanadium in nearby populated areas such as Pine Grove, and the Pine Summit Subdivision similar to those for Units 16, 17, and 18. This program will be described in the Compliance Monitoring Report to be developed jointly by Staff and Applicant.

14. Baseline ambient concentrations of mercury, arsenic, ammonia, and vandium will be combined with predicted Bottle Rock impacts to determine short term (1-hour) population exposures. Predicted impacts from other sources, where available, will also be used in this analysis.

15. The Commission Staff will arrange necessary meetings among Staff, Applicant, CARB, LCAPCD, and DOHS, and other interested parties to determine significant ambient guideline concentrations (related to public health concerns) for use in the Bottle Rock ambient monitoring program for mercury, arsenic, ammonia, and vanadium. Criteria for determining significant ambient concentrations will be described in the Compliance Monitoring Report to be developed jointly by Staff and Applicant.

16. Ambient monitoring for mercury, arsenic, ammonia, and vanadium after Bottle Rock becomes operational will not be initiated unless significant ambient concentrations in populated areas are predicted to occur due to Bottle Rock emissions.

17. Staff will met with Applicant and LCAPCD to develop a Compliance Monitoring Report.

Occupational Health

18. The Applicant will request Cal/OSHA Consultation Service to review the Applicant's accident prevention program. Verification of review will be submitted to the CEC no later than 150 days prior to power plant operation.

Conclusions

Regulated Pollutants

1. If the Applicant complies with the State Ambient Air Quality Standards for regululated pollutants, public health should be adequately protected from exposure to H_2S, sulfur dioxide, particulate matter, and sulfates.

2. Significant health impacts are not expected to occur from ^{222}Rn emissions.

Nonregulated Pollutants

3. If the Applicant performs the measures specified in the nonregulated pollutant Findings, the public should be adequately protected from adverse health impacts from nonregulated pollutants from Bottle Rock power plant.

Occupational Health

4. If the Applicant performs the measures specified in Finding 18, the employees at Bottle Rock power plant should be adequately protected from adverse health impacts from pollutant emissions.

Conditions

1. The Applicant will implement the measures as described in the above Findings.

AIR QUALITY/AIR QUALITY SYSTEMS ENGINEERING

Findings

Operation of Abatement Systems

1. The Applicant has proposed to use three separate H_2S abatement systems. These systems are the EIC process, the Stretford process (including surface condenser), and the hydrogen peroxide process. Additionally, a turbine bypass system will be installed.

EIC Abatement System

2. The EIC system will be used upstream of the power plant. The design is scheduled to be completed in May, 1982.

3. The maximum abatement efficiency of the EIC process for the Bottle Rock plant cannot be determined until the plant is in operation.

4. Information provided by the Applicant indicates the abatement efficiency potential for the EIC process to be in the range of 90-99%+.

5. The EIC corporation is still in the process of obtaining design information from the Applicant. Therefore, no detail design information has been generated to define the abatement process and the required monitoring and control.

6. Reliability related aspects of the EIC system are also unknown at this time. EIC, LCAPCD and the Applicant expect the

reliability of the EIC system, once in operation, to be similar to that of the Stretford unit.

7. The EIC manufacturer has stated that operator training and performance are critical to the reliability of the EIC system.

8. No guarantees of reliability of the EIC unit will be given to the Applicant by the EIC manufacturer. The Applicant will require guarantees of performance.

9. The EIC manufacturer recommends a daily check of the system. A DWR operator will inspect the system at least daily and as necessary.

10. The main constitutent of the EIC chemical solution is copper sulfate. To maintain abatement efficiency, the copper ion content will be kept at an automatically controlled setpoint by modulation of a chemical feed control valve.

11. The EIC system will also treat steam during power plant outages. If utility service power is lost during this condition, an emergency generator will supply the necessary power to run the EIC system.

12. Problems of corrosion, carryover of chemical products of the process downstream of the scrubber, and slugs of water occasionally contained in the steam were encountered in tests of the EIC system, on a 100,000 lb/hr of steam, experimental plant (PG&E Unit 7). These problems have been addressed in the design of the proposed plant.

13. EIC will install on Bottle Rock a demister superior to that at the experimental plant to reduce some of the problems listed in Finding 12. The performance of the demister, however, is unproven at this time. Vendor testing is presently underway.

14. A steam testing program is currently being conducted for the Applicant by LCAPCD. This data will be used by EIC to establish some of their design criteria.

15. No formal contractual agreements have been reached between the EIC Corporation and MCR Geothermal Corp., Bottle Rock's steam supplier.

16. The incorporation of the EIC system with the other two processes indicated in Finding 1 raises the capital cost of the abatement systems. However, the EIC system has an anticipated low operational cost relative to the other two systems, and will reduce the abatement requirements of the other two systems when it is in operation. Therefore, it will reduce the operational cost below that of the combined systems using the Stretford and hydrogen peroxide processes.

17. The potential beneficial aspects of the inclusion of the EIC system are:

a. Capital cost gains associated with the possibility of not needing a downstream abatement system in some future plants;

b. Operational cost savings associated with (a) above;

c. Demonstration of appropriate technology for possible retrofitting of the plants in the Geysers;

d. Capability of treatment of steam for H_2S abatement during a plant shutdown condition;

e. Cleaner steam being supplied to the power plant. This would result in less maintenance and operational problems at the power plant;

f. Waste disposal included with the power plant cooling tower waste stream that is returned to the reinjection well;

g. Partial removal of boron, arsenic, particulates, and other constituents from the steam.

Stretford Abatement System

18. The Stretford system design is not scheduled to be completed until approximately February, 1981.

19. The preliminary information submitted by DWR (Data Request Responses of November 15, 1979) indicates that equipment failure or system problems will be detected at the Stretford and power plant control rooms by alarms, indicators, or recorders or by direct observation by an operator. All critical temperature, pressure, flow and level indicators will have high and low levels that terminate on the control panels.

20. The information also indicates that in the event that the flow of noncondensible gases to the Stretford unit has to be stopped in order to facilitate repair or prevent equipment damage, a bypass system will be built into the system design, allowing venting of untreated gases into the cooling tower. In this way, the power plant can be kept in operation with the

other abatement units operating or reduced generation could occur while repair takes place.

21. The expected H_2S abatement efficiency of the Stretford Unit is 99%+ of the H_2S in the noncondensible gas flow. The reliability of the Stretford Unit is not known but is expected to be 90% or greater availability.

Condensate Treatment System - Hydrogen Peroxide System

22. The Applicant has agreed to provide a secondary H_2S abatement system downstream of the power plant. The type of process proposed at this time is a hydrogen peroxide treatment using iron sulfate as a catalyst.

23. The actual abatement efficiency of the hydrogen peroxide process for the Bottle Rock plant cannot be determined at this time. Bechtel National, Inc. will be conducting a testing program on the hydrogen peroxide process from the Bottle Rock steam field to determine abatement efficiency and other aspects such as solids formation. Until the tests are completed and results of the abatement efficiency determined, the abatement efficiency is projected to be in the 95-98% range.

24. The results of these tests are scheduled to be released approximately January 1, 1982. The Applicant will design the system after the testing program is completed. The final design is scheduled to be completed in approximately August, 1982.

Turbine Bypass System

25. The function of the proposed turbine bypass system is to allow by-passing of the steam around the turbine. This provides

treatment of the steam by the H_2S abatement systems downstream of the turbine during scheduled and emergency shutdowns, or startup conditions.

26. The system is presently in the preliminary design stage. Such a system has never been used before on a geothermal power plant, although it has been used successfully on other power-generating facilities.

27. It is not expected that the use of the steam bypass system will in some way affect normal power plant operation or partitioning of condensibles and noncondensibles within the turbine condenser. However, the effects on normal power plant operation or partitioning have not been evaluated.

28. Although actual abatement efficiencies for the EIC and hydrogen peroxide systems are not established, there has been some evidence indicating a potential for high abatement efficiencies (greater than 95%) by each system. There appears to be a number of potential ways that the three proposed abatement systems identified in Finding 1 could operate to achieve H_2S emissions of no more than 5 lb/hr.

Compliance With Air Quality Laws

29. Bottle Rock power plant is proposed to be located in the Lake County Air Pollution Control District (LCAPCD). The following laws are applicable to the Bottle Rock power plant:

a. Clean Air Act and implementing regulations;

b. Lake County Air Pollution Control District Rules

(1) 602, 602.1, 604, 605 (New Source Review)

(2) 411

(3) 412

(4) 421.2-A

(5) 430

c. California Health and Safety Code and implementing regulations.

30. Bottle Rock power plant will not undergo federal NSR or PSD review, provided the Lake County APCD issues the necessary enforceable permits.

31. LCAPCD Rule 411 limits Bottle Rock's emissions of particulate matter to whichever is the lesser of:

a. 0.2 grains per standard cubic foot of gas, or

b. 40 pounds per hour.

32. Until the Applicant determines the performance of the EIC system and the extent to which the condensate treatment system will be used, the amount of particulates that could be emitted from the process cannot be precisely determined. Nonetheless, including an assumed contribution from condensate H_2S treatment, the plant's total particulate emissions are expected to be less than 40 lbs. per hour.

33. Particulate emissions during power plant outages are not expected to exceed those resulting from normal plant operation.

34. LCAPCD Rule 412 limits emissions from any sulfur recovery unit producing elemental sulfur to:

a. 10 ppm H_2S by volume, and

b. 100 lbs. per hour of sulfur compounds calculated as SO_2. The LCAPCD Air Pollution Control Officer (APCO) has interpreted Rule 412 as applicable to the Stretford and EIC Units.

35. The H_2S emissions from the Stretford unit, regardless of whether or not the EIC system is operating are guaranteed to be less than 10 ppm by volume. At 10 ppm by volume the H_2S emission rate should be less than 1 lb/hr.

36. LCAPCD Rule 421.2.A. limits H_2S emissions from a geothermal power plant to not more than 100 grams/GMWH. H_2S emissions from all geothermal power plants located in Lake County will be limited to 50 gr/GMWH beginning January 1, 1990. The 50 gr/GMWH emission limitation will be reviewed at a public hearing in 1987. The Applicant proposes to operate the Bottle Rock power plant with an H_2S emission rate not to exceed 38 gr/GMWH (5 lbs/hr).

37. A general emissions limitation contained in LCAPCD's Rule 430 prohibits the discharge of any contaminant in an amount which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or which causes injury or damage to business or property. Further, LCAPCD Rule 430 states that emissions in quantities which cause the ambient air quality to exceed those amounts listed in the Table of Standards applicable statewide (as shown in 17 California Administrative Code §70200) is a violation of that rule.

38. The H_2S ambient air quality standard is based in part on a nuisance emissions threshold and on public health

considerations. If the Bottle Rock plant is built and operated as proposed, it is expected to comply with Rule 430.

39. LCAPCD Rules 602 and 605 require that the APCO perform an air quality analysis for any source which will emit more than 20 lbs. per hour or 150 lbs. per day of any pollutant, except CO, for which there is a local, state, or federal ambient air quality standard (AAQS). The APCO must deny an authority to construct for such a source unless he determines that emissions from the source may not be expected to result in the violation or measurable contribution to the continued violation of any AAQS, and provided that the best available control technology (BACT) will be used on the contaminant-emitting equipment for any pollutants for which there is an AAQS. Further, Rule 604 allows the APCO to conduct an air quality analysis for a source which will emit less than 20 lbs. per hour or 150 lbs. per day of any pollutant for which there is an AAQS if the emissions from the source may be expected to result in the violation or measurable contribution to the continued violation of an AAQS.

40. If an analysis performed pursuant to LCAPCD Rule 605 indicates the source will result in the violation of the measurable contribution to the continued violation of an AAQS, Rule 602-B provides that that source may still be permitted if emissions offsets, beyond those reductions required by existing control strategies, are obtained in such an amount that a "demonstrable baseinwide air quality benefit" will result.

41. The State AAQS for Hydrogen Sulfide (H_2S) which may not be equalled or exceeded, is 0.03 ppm. H_2S measurements in

the vicinity of Bottle Rock show that the standard has been exceeded several times in previous years. In the absence of contrary evidence, it is thus assumed that the standard will be exceeded when Bottle Rock comes on line. Therefore, Bottle Rock must comply with LCAPCD's measurable contribution provisions set forth in Finding 39.

42. A central element of the initial air quality analysis for the Bottle Rock project was the interpretation of a series of atmospheric tracer tests conducted by Meteorological Research Inc. (MRI) at the proposed plant site from 1978 through 1979. The release height of the tracer gas for Test 5 was 500 feet. The analysis of MRI Tracer Test 5 (September 27, 1978) indicated that the Bottle Rock project as proposed at 100 grams/GMWH of H_2S would not comply with Lake County Rule 602.

43. Applicant contended that the release height for Test 5 should have been higher in order to more accurately depict the power plant's plume rise. Calculations performed subsequent to the test suggested that plume rise from the Bottle Rock cooling towers might, under the conditions of the test, have been somewhat higher than 500 feet. The Staff, Applicant, and ARB reviewed the plume rise analysis[1] and agreed that a plume rise of 500 feet was not appropriate for a geothermal power plant cooling tower. All parties agreed that release heights of 750 and 1,000 feet were more realistic.

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[1] Systems Applications, Inc., Simulated Hydrogen Sulfide Impacts From the Proposed Bottle Rock Ppower Plant Under Subsidence-Inversion Conditions, dated August 7, 1980, Table 1, p. 6.

44. The Applicant submitted the SAI Geysers Hybrid Model, which compared the power plant ambient H_2S impacts at release heights of 500 feet, 750 feet, and 1,000 feet under Test 5 meteorological conditions.[2]

45. The model demonstrated in conjunction with Test 5 that at a plume rise of either 750 or 1,000 feet the Bottle Rock project will not result in a measurable contribution to an existing violation when the H_2S emission rate is limited to 5 lbs/hr. The LCAPCD will independently review this and additional analytical techniques in making the Determination of Compliance for the power plant.

46. The steam supplier has proposed to limit the H_2S emissions resulting from steam stacking by utilizing the power plant H_2S control systems. The EIC process and a turbine bypass will be used to provide H_2S abatement for the uncurtailed steam.

47. Emission rates of H_2S during unit outage conditions, provided abatement systems outages are not the cause of unit trip, would be approximately equal to or less than normal plant operations.

48. Based on the controls described in Finding 46, the APCO of the LCAPCD has indicated that, pending resolution of APCD conditions, it is likely that the steamfield will receive an air quality permit.

[49. Unit 16 and other PG&E power plants recently proposed do not incorporate technological advances of this proposed power

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2 Id. ,Table 6, p. 107.

plant.] [Finding proposed by LCAPCD; CEC Staff does not support; Applicant is neutral.]

Conclusion

1. If the Applicant implements the measures specified above and complies with the Conditions below, it is likely that:

a. the abatement systems will perform effectively and will be adequately monitored and protected; and

b. the plant will conform to all applicable air quality laws.

Conditions

Abatement Systems Design

Definitions

The following definitions will apply to the DWR Bottle Rock facility only:

Review - Review shall mean a 30-day period during which the control agency(s) shall assess and inform Applicant of any apparent deficiencies. If no notification is given, the Applicant shall proceed on its project schedule. If notified of an apparent deficiency, the Applicant shall inform the agency(s) of its intentions to provide additional information or modifications to correct the deficiency within 30 days. A projected schedule for this information shall also be provided.

Design Information - This information shall contain the equivalent level of detail as the Stretford system flow diagram (AFC figure 4.3-15, attached) submitted by PG&E in Geysers Unit

18. This information shall also consist of a tabulation of associated equipment (e.g., pumps, blowers, tanks, etc.) and a list indicating numbers of components and capacities. This information may be based upon final bid specifications.

Forty-five (45) days before procurement - This shall mean 45 days before specific equipment hardware is purchased. If design information is not provided 45 days in advance of procurement the Applicant shall have proceeded at its own risk.

1. The Applicant shall provide the CEC staff, ARB, and LCAPCD, for their review, design information on the following:

[a. EIC systems] [This finding is still being discussed by the Staff and Applicant, to determine to what extent and under what procedures proprietary information concerning the EIC system may be released].

b. Stretford system,

c. Turbine by-pass,

d. Condensate Treatment (Hydrogen peroxide), and

e. any performance information which is not proprietary on the condenser/sparger system acquired during shop testing and preoperation compliance and monitoring activities;

when this becomes available, but no later than 45 days before procurement of equipment.

2. The Applicant shall submit verification to the CEC, ARB and LCAPCD that the initial EIC operators have been trained in accordance with EIC manufacturer recommendations.

3. The Applicant shall provide the results of vendor testing of EIC demister systems to the CEC, ARB and LCAPCD for

their review when they become available, but no later than 45 days before procurement of the demister equipment.

4. The Applicant shall provide the results of LCAPCD's steam testing to the CEC staff and ARB when they become available, but in no case later than 45 days before procurement of H_2S abatement equipment.

5. The Applicant shall provide to the CEC and LCAPCD a summary description of the contractual relationship among the Applicant, the steam supplier, and EIC Corporation.

6. The Applicant shall provide the CEC, ARB and LCAPCD a summary results of the Bechtel tests described in Finding 23 as soon as they become available, but in no case later than 45 days before procurement of equipment.

7. The Applicant shall provide the CEC, ARB and LCAPCD a verification that it has received a performance guarantee of 90% or better obtained from EIC Laboratories for the EIC system.

Monitoring and Compliance

The Applicant shall as a minimum undertake the following monitoring and compliance programs. Specific details on testing procedures, monitoring equipment specifications, monitoring program duration, and reporting procedures shall be established in the Final Monitoring and Compliance Report on the Bottle Rock project, or in the Generic Geothermal Monitoring and Compliance Program (currently under development by the CEC). As described in Conditions 8-11, the Applicant shall submit a monitoring program at least 60 days prior to start up of the Bottle Rock Facility. Continuous instrumental methods of measuring H_2S will be

considered. LCAPCD will advise the ARB and CEC on the acceptability of the programs.

8. The Applicant shall develop a program to measure at least quarterly inlet steam constituents (upstream of the EIC system), and steam constituents downstream of the EIC system.

9. The Applicant shall develop a program to measure H_2S in the noncondensible gas flow upstream of the Stretford unit and in the off-gas vents of the Stretford unit to the amosphere and to the cooling tower.

10. The Applicant shall develop a program to measure H_2S concentrations and liquid flowrate of the condensate upstream of the secondary abatement system and H_2S concentrations downstream of the secondary abatement system prior to its release to cooling tower circulating water.

11. The Applicant and LCAPCD shall develop a program to monitor ambient H_2S and TSP concentrations and/or other pollutants prior to and during operation of the Bottle Rock facility at locations to be mutually agreed upon. The Applicant shall submit the monitoring plan to ARB and CEC for approval at least 6 months prior to start up of the facility.

12. The Applicant shall develop a program to monitor the H_2S abatement system's performance. Results of this monitoring program shall be submitted to LCAPCD, ARB, and CEC as follows:

a. The Applicant shall provide a compliance report on the results of the monitoring program within 100 days after the facility has been declared

operational. The monitoring activity is to cover a minimum period of 75 days after the time the facility has been declared operational. The report shall contain data obtained during the 75 day monitoring period. A minimum of 30 days of data (not necessarily consecutive days) at 90-110% rate power generation shall be required. The report shall contain as a minimum hourly H_2S concentrations in the off-gas and condensate, power generation rates, a description of the abatement system's failures, if any, and data obtained in Items 9, 10, 11, and 12 above.

b. If, during the first 75 days of monitoring described in Item a, 90-110% rated power has not been achieved for a minimum total equal to 30 days, monitoring shall continue and a second report is to be submitted within 15 days of obtaining 30 total days at 90-110% rated power. The second report shall include a summary statement of why 90% rated power was not being achieved, and a description of any corrective action taken.

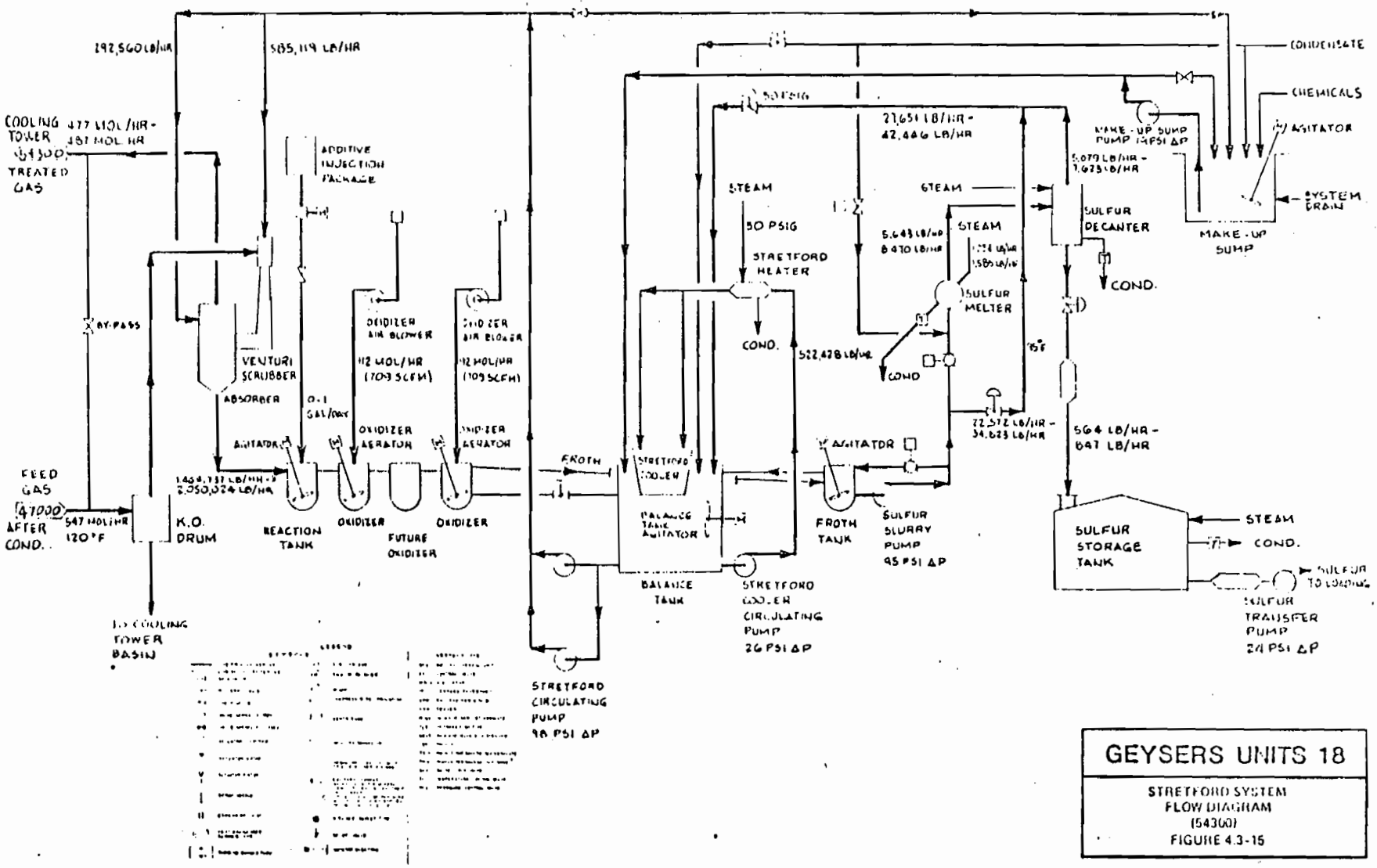
c. Upon review of the information in Item(s) a and b, the Air Pollution Control Officer of the LCAPCD shall present to the Commission and ARB findings on conformity of air quality standard(s).

d. If the APCO finds that the facility has not met applicable emissions limitations, the Applicant shall prepare and submit its response to the Commission, ARB and LCAPCD. The response shall be submitted within 30 days after the submittal of the report(s) showing noncompliance. The response shall include a description of the mitigation measures or additional control(s) to be applied to the facility or other actions taken to meet the emission limitations. The report will also describe a schedule for implementation of these measures.

e. Upon review of the information in Item d, the Commission, ARB, and LCAPCD shall jointly determine what actions the Applicant shall take to comply with emission limitations.

f. After the implementation of the approved mitigation measures, the Applicant shall conduct monitoring programs described in Items a and b. The LCAPCD shall perform the actions described in Item c.

13. After obtaining a finding of conformance described in Item 12.c., the Applicant shall continue to monitor the H_2S emissions from the power plant and report on the status of compliance as required by LCAPCD, but not less than on a quarterly basis. In case of noncompliance, actions identified in Items 12d, 12e, and 12f, will be required to return to a condition of compliance.



GEYSERS UNITS 18

STRETFORD SYSTEM
FLOW DIAGRAM
(54300)
FIGURE 4.3-15

SYSTEMS ENGINEERING

Plant Facilities Control/Monitoring-Power Cycle System

Findings

1. The Bottle Rock power plant will be operated as a baseload unit. Daily adjustments, therefore, will be minimal.

2. Monitoring and control is designed to be done automatically; however, at least one attendant will be assigned to monitor plant operation on each shift. Electricians, mechanics, and technicians will also be available during the dayshift working hours and on call during off hours.

3. In its response to CEC Staff Data Request No. 1, dated November 15, 1979, the Applicant listed 30 plant operating conditions that will result in an alarm.

4. Of the 30 conditions, 22 can cause an automatic shutdown. Where possible, early warning alarms are given in the 22 shutdown conditions to allow possible operator corrective action to prevent a shutdown.

5. There are five conditions in the plant which can result in reduced generation to minimize total shutdowns.

6. Other than the cooling tower fans, all auxiliaries required to maintain the turbine-generator unit at full load will have installed spares which will automatically start up in the event of the failure of an operating auxiliary component.

7. The main steam turbine generator has a capability of a load reduction to approximately 5 Mw to operate all in-house power plant components and abatement systems.

Conclusion

1. If the Applicant designs the power plant as described in the above Findings, the proposed power cycle monitoring and control system appears adequate to protect the facility's components and to reduce the possibilities of power outages.

Condition

1. The Applicant will design the power plant as described in the above Findings.

EXHIBIT 104

COUNTY OF LAKE

AMENDED USE PERMIT 85-27 (MMU 10-01)

(Formerly Amended Use Permit UP 85-27)

BOTTLE ROCK POWER, LLC STEAMFIELD GEOTHERMAL PROJECT

Pursuant to the approval of the Lake County Board of Supervisors on February 19, 1980, and as amended by the Lake County Planning Commission on July 29, 1982, March 14, 1985 and June 26, 1986, **and further modified on January 13, 2011,** there is hereby granted to Bottle Rock Power, LLC, P.O. Box 326, Cobb, CA 95426, a Use Permit for the construction of a geothermal steamfield including up to twenty-seven (27) geothermal development wells from three (3) pads. Pads and numbers of wells shall be limited to the following: Francisco (9), Coleman (6), West Coleman (12). This permit also allows a total of twenty-seven (27) redrilling of well bores in new directions and/or replacement wells and unlimited rework of the ~~41~~ 27 permitted wells. The authorized project also includes associated support equipment necessary for geothermal field operations consistent with the approved plan of development, steam and condensate pipelines, sediment catchment basins, water monitoring facilities, access roads, spoil site (Francisco Spoil Area) and reinjection wells, along with incidental uses and activities; further described in condition D.1 through 5 of this use permit and identified in the Plan of Development in the Supplemental EIR dated December 1985 as amended to exclude Hodges, Power Pole, and Modified Boriak pad sites in accordance with the Lake County Ordinance Code. The project is located in the Cobb Valley along High Valley Road in Section 5 & 6, T11N, R8W, MDB&M, on approximately 390 acres identified as Lake County Assessors parcel numbers 013-002-03, 04 & 05; near the communities of Glenbrook and Pine Grove.

The Planning Commission, finds that the establishment and maintenance or operation of the use for which application is made will not, under the circumstances of this particular case, be detrimental to the health, safety, peace, morals, comfort and general welfare of persons residing or working in the neighborhood of such use, or be detrimental to the general welfare of the County.

The Planning Commission has caused to be prepared an Environmental Impact Report and Supplements on the subject of this application and has held public hearings thereon and has carefully considered this matter pursuant to the California Environmental Quality Act and the State CEQA Guidelines pertaining thereto, and pursuant to the Environmental Protection Guidelines of the County of Lake.

I. APPROVAL IS SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:

1. The Use Permit shall be valid until June 26, 2013. However, if the corrective measures required by this modified Use Permit are not initiated within sixty (60) days of approval of the Amended Use Permit, revocation proceedings may be initiated subject to Section 21-84 of the Lake County Code. The Planning Commission may, in its discretion, approve time extensions.

2. The permittee shall permit the County of Lake or its representative(s) or designee(s) to make periodic inspections at any reasonable time deemed necessary in order to assure that the activity being performed under authority of this permit is in accordance with the terms and conditions prescribed herein. Applicant shall provide current access information and keys, key cards or other materials necessary for the agency staff with valid identification to gain access.

3. The Planning Commission may, during public hearing, modify or revoke this Use Permit any time during its term if it is determined that the use herein permitted is creating a nuisance or a condition hazardous or detrimental to the general public or to property in the vicinity of the use.

4. To provide adequate quantities of steam to the Bottle Rock Power Plant while minimizing impacts identified in the Supplemental EIR, this project shall follow a phased approach. Details for this approach shall be described in the supplemental **phasing plan** to be

submitted to the Community Development Department for review and approval sixty (60) days prior to pad, road or pipeline construction and approved prior to issuance of a grading permit. Project phasing shall incorporate the following general principles:

a. Development will occur in an orderly and rational manner while achieving both resource and environmental objectives.

b. Environmental impact such as surface disturbance erosion, sedimentation, drilling noise and dust emissions shall be minimized consistent with the Lake County Code and Air Quality Management District Rules.

c. Each individual phase of project development will be substantially completed prior to initiation of each subsequent phase.

d. Leasehold reservoir information if prepared by a reservoir engineer, geologist or other qualified professional and provided to the Community Development Department, may justify revisions in the phasing plan. All such information shall remain proprietary.

5. Days and hours of operation for facilities shall be twenty-four (24) hours per day, seven (7) days per week, except as specifically amended by conditions herein.

6. This Use Permit may be reviewed by the Planning Commission at the end of eighteen (18) months and every three (3) years thereafter, or as needed, and shall be subject to the following conditions:

7. No use, structure or development shall occur that is inconsistent with the approved plan of development or this use permit. The permit holder shall apply for a use permit modification if the permit holder proposes any construction inconsistent with this use permit and the approved plan of development.

The Community Development Director may approve minor amendments which are in substantial conformity with the uses and locations of uses approved by UP 85-27 when, in the opinion of the Community Development Director, such amendments will not result in any significant adverse environmental impacts.

All amendment requests shall be in writing and be approved, modified or denied by the Community Development Director in writing. The Director shall provide public notice of the proposed amendment to all property owners within 700 feet of the project property lines, as well as to the Planning Commission, at least two (2) weeks prior to any action or an amendment by the Community Development Director. Any dispute regarding the proposed amendment may be appealed to the Planning Commission by any person or the Community Development Director for a final determination.

A. TO PROTECT PLANT ASSOCIATIONS:

1. Each specific pad, road and borrow site steam line or other area of soil disturbance shall be evaluated by a landscape architect, registered forester, plant ecologist or other qualified person acceptable to the Community Development Department and permit holder, to select and program the re-establishment of ground cover and vegetation to include indigenous forage and habitat and provide maximum erosion control. A revised revegetation program shall be submitted to the Planning Department for review and approvai, as described in condition *A.2.*of this permit.

2. Cut slopes on the road and pad areas shall be constructed as agreed upon by permit holder's engineers and the Community Development Department consistent with revised **revegetation** and **erosion/ sedimentation control plans** to be submitted for approval by the Community Development Department a minimum of fifteen (15) days prior to pad, road or pipeline construction and approved prior to issuance of a grading permit. Stepped benches shall be used where appropriate unless considered unnecessary by the person in A-1. Top soil shall be stock piled for later respreading over the

disturbed areas prior to reseeding as recommended by person A-I.

3. When each stage of road and pad construction has been completed in accordance with the approved **phasing plan**, the revegetation program developed in A-I shall commence, not later than the following fall. The revegetation program shall be directed by the landscape architect, registered forester, plant ecologist or other qualified person acceptable to the Community Development Department and permit holder.

4. The entire revegetation program shall be re-evaluated during the spring following initial planting and accompanied by a written statement from the qualified person listed in A-I, and provided to the Community Development Department. The written statement shall indicate which planting techniques were successful or unsuccessful, and what will be done to improve the revegetation program if needed. Photos shall be included to illustrate the relative success of revegetation efforts. This shall include photos taken prior to construction. If deemed by the Community Development Department to be unsuccessful, additional revegetation will be required not later than the immediately succeeding fall season. The revegetation program shall include periodic inspection and upgrading as necessary. This program shall provide for an accelerated revegetation effort to mitigate additional surface disturbance documented in the Supplemental EIR. All plantings shall be maintained or replanted for the life of the project.

   The revegetation and sediment control measures shall follow the recommended mitigation measures included in attachments 1 and 2 of this use permit.

5. Except for large stumps, vegetation removed during construction shall be chipped and re-spread when beneficial as determined by person in Section A-I, or burned under the permits required by the Lake County Air Quality Management District. Stumps may be buried outside of engineered fill and embankments.

6. Well discharge shall be directed away from adjacent woody vegetation and populated areas and appropriate energy dissipaters shall be used as required by the Lake County Air Quality Management District (LCAQMD).

7. In order to protect riparian and fen areas as well as other vegetation on the leasehold, access to the drill sites shall be restricted to existing roads and proposed roads as defined in the Plan of Development included in the Supplemental EIR (FINAL, dated June 1986) as amended by this use permit.

8. Vegetation within "fall-out" range of bleeding wells shall be assessed for damage or growth impedance by a plant pathologist or other qualified professional as approved by the Community Development Director and an annual report, together with photographs of selected sites, shall be submitted to Community Development Department. If damage to ecosystem is present, mitigation measures shall be enacted according to direction from the Community Development Department.

9. Vegetation beyond the construction perimeter shall not be disturbed. The clearing limits for the pad are in the Plan of Development.

B. TO PROTECT AGAINST EXCESSIVE SOIL EROSION, INDUCED LANDSLIDES AND SURFACE GEOLOGIC HAZARDS:

1. **Plans for drill pads, steam transmission pipelines, sumps and access road** shall be prepared by a registered Civil Engineer or other qualified professional. Topographic mapping by photogrammetric methods shall be used for design and be supplemented as necessary with ground surveys. Road, pipeline, and pad locations shall be staked on the ground and adjusted as

necessary before completion of final plans. Plans shall include a separate drainage plan using five foot contour intervals and supporting calculations for culvert sizes using acceptable engineering methods. Plans shall show specific provisions for erosion protection along pipeline routes, at culverts and on cut and fill slopes. Detailed specifications for construction should be prepared in a manner similar to applicable portions of "Forest Service General Provisions and Standard Specifications for Construction of Roads and Bridges-1977" and "Regional Standard Specifications", a U.S.D.A. Forest Service publication. Plans, specifications and ground locations shall be approved by the Community Development Department or their authorized representatives before starting construction, and shall also be approved by the Central Valley Regional Water Quality Control Board (CVRWQCB) prior to construction.

2. Drill pad and road fills shall be compacted to a minimum 95% relative compaction to minimize erosion. If significant erosion occurs as a result of any part of this project, permit holder shall take prompt remedial-action as directed by the Community Development Department. Tests indicating compaction results shall be submitted for approval to the Community Development Department within thirty (30) days of completion.

3. Filled slope banks shall not exceed a gradient of 2:1. Toes of all fills shall be stabilized with rock and gravel or keyed into stable soil and placed to reduce erosion potential to an absolute minimum on all fill slope banks. Revegetation of slopes shall be carried out as specified in Condition A. Unless approved by an engineering Geologist and the Community Development Department, cut slopes shall not exceed a gradient of 1-1/2:1.

4. Subdrains shall be provided under all fills where natural drainage courses and seepage are evident.

5. No drill pad construction or access road shall be allowed on potentially active landslides, unless properly mitigated, subject to approval by the Community Development Department.

6. Buffer zones of undisturbed vegetation shall be maintained to the maximum width possible on either side of streams, but in no case shall be less than the setbacks established by the Lake County Grading Ordinance from Class I, II and III streams. No geothermal related construction shall take place within this buffer zone unless consistent with the Plan of Development approved by the Lake County Planning Commission. Roads crossing riparian areas shall be minimum safe widths.

7. An impermeable retaining levee of not less than eighteen (18) inches in height and three (3) feet in base thickness, or an equivalent measure shall continue to be maintained in areas containing potentially hazardous materials, including equipment service, fuel transfer and drilling rig locations. Levees or equivalent measures shall be maintained to prevent spillage and/or storm runoff accumulation from random discharge. To minimize damage to levees from truck traffic, permit holder shall place ramps of rigid construction over levees. These ramps shall be in place immediately following completion of levee construction. Plans for new or replacement retaining levees or equivalent measures shall be designed by a licensed Civil Engineer and shall be submitted to the Community Development Department for review and approval prior to construction.

8. A revised **drainage plan** shall be submitted sixty (60) days prior, to pad, road or pipeline construction. Sediment catchment basins shall be in place prior to said construction. Said plan shall include sedimentation control strategies and shall indicate how runoff will be distributed and channeled to existing natural waterways, limiting an increase in water head and thereby avoiding unnatural channel abrasion. Energy dissipaters and collection devices to reduce the erosion force of unnatural runoff will be required where determined by county or state agency representative.

Sediment catchment basins and their locations shall be included in said plan. Their siting and design shall follow the recommended mitigation measures included as Attachment 2 of this use permit.

9. All grading activity and erosion prevention measures shall be completed and all drainage structures shall be in place and operational prior to October 10 of any year. New grading and excavation activity may not be permitted during the consecutive period from October 10 to April 10. (Extensions for short term grading activities beyond October 10 may be allowed by the Lake County Community Development Director in writing upon dry weather and establishment of a suitable soil moisture specification for any stated activity, consistent with the provisions of the Lake County Grading Ordinance.)

10. Applicant shall agree to contract with the County of Lake for engineering and inspection services, as required, to a completion date agreed upon by the permit holder and the county, to insure compliance with the above stated conditions.

11. In areas requiring removal of vegetation but no grading root crowns shall be left intact so as to retard soil erosion. Excavated materials shall not be sidecast or pushed over the edges during construction and final grading. Excess earthen materials (rocks, boulders and dirt) shall be removed from the site and disposed of in an approved disposal site. Cut and fill operations shall be carried out so that the down slope roll of rocks, boulders and/or earthen material is prevented.

C. SUMP/PAD CONSTRUCTION, OPERATION, MAINTENANCE & CLOSURE:

1. The sumps and pads shall be designed by a registered civil engineer, consistent with the recommendations of a registered engineering geologist. Design of the sump fill shall be to a specification to withstand both static loads and dynamic loads (imposed by credible seismic events) with safety factors of 1.5 and 1.3 respectively. The sump shall be constructed of material compacted to at least 95% relative (ASTM-D-1557-70), which may be reduced to 90% compaction if approved by the Central Valley Regional Water Quality Control Board (CVRWQCB) and Community Development Director, and demonstrated by soils reports as a hardship. If used for a period of eight (8) months or less, the sump shall be lined with at least two (2) feet of clay having permeability not to exceed 1 x 10 cm/sec or an equivalent impermeable membrane. If used for a period of between eight (8) and twelve (12) months, the sump shall be lined with at least three (3) feet of clay. Sumps used for more than one (1) year shall be double-lined with leachate collection systems as required by the CVRWQCB pursuant to Subchapter 15, Chapter 3, Title 23, California Administrative Code.

2. Until such time that the sumps have been removed in accordance with the Sump Closure Plan approved by the CVRWQCB in 2010, the sumps shall be operated in such a manner as to preclude overtopping of the sump. Three feet of freeboard shall be maintained at all times. Volume of the sump shall be sufficient to accommodate both the drilling mud and any reasonable amount of precipitation which could enter the sump. All sumps shall be equipped with measuring devices and alarms that indicate when freeboard level has been met. Pumps used to transfer drilling fluids between drill pads shall be equipped with low pressure alarms and flow/no-flow shut-off switches on all pressure lines. No transfer of drilling fluids between drill pads shall occur without prior approval of the Central Valley Regional Water Quality Control Board (CVRWQCB) and Lake County Health Department. Said transfer shall occur in rigid transfer piping meeting approved engineered standards. Transfer piping shall be pressure tested at least once per year. Testing shall occur prior to commencement of winter rains. Placement of drill mud or cuttings directly on the pad is prohibited unless specifically allowed in the approved DRAVO plan in condition C. 10. of this use permit, or an approved solids separation

system. Plans for this solids separation system shall be submitted thirty (30) days prior to the proposed use of said system, and fifteen (15) days thereafter. The solids separation system shall not be used prior to written approval of said plans by the Community Development Department. All future well drilling activities on the Francisco, Coleman and West Coleman pads shall be sumpless.

3. Applicant shall prepare a revised **contingency plan** for all spills including emergency pumping of the sump in the event of heavy, unexpected rainfall or if excessive geothermal fluids are encountered. The Plan shall show who is responsible and what equipment and manpower is available to respond to such an emergency, and shall be updated every six (6) months. Applicant shall maintain a current list of all surface water users downstream from Francisco Pad to Clear Lake. Said plan shall include the method of notifying surface water users and all responsible County and State agencies immediately following an emergency. The list is to be included as an attachment to the contingency plan. The plan shall be submitted for approval to the Lake County Planning Department within sixty (60) days of approval of the amended use permit. This plan shall be reviewed and revised, if necessary, every two (2) years and submitted to the Planning Department for approval.

4. Applicant shall prepare **a contingency plan for emergencies due to breaks or unexpected deformation of the pipeline or their supports**. The Plan shall show who is responsible and what equipment and manpower is available to respond to such an emergency. The plan shall be submitted to the Lake County Community Development Department prior to commencement or continuation of operations, and annually updated, if changes have occurred, on anniversary of permit.

5. The Francisco, Coleman, and West Coleman sumps shall be removed in accordance with the Sump Closure Plan approved by the CVRWQCB in 2010. All future drilling operations shall utilize sumpless drilling technology.

6. Prior to sump closure, removal or burial of sump materials or within thirty (30) days of the removal of drilling equipment, or as directed by the CVRWQCB, County or State Health Department Officials, sump fluids (both mud and supernatant liquids) shall be chemically analyzed for type and quantity of biologically sensitive materials, especially hazardous materials, heavy metals and acids unless waived in writing by the Community Development Director upon written consultation with the CVRWQCB.

   Sampling and testing parameters, and procedures shall be submitted to the Community Development Department for review and approval. Additional sump sampling, water quality monitoring and testing may be required if requested in writing by the Community Development Department, Lake County Health Department, or the CVRWQCB.

   Such testing shall be performed by a certified water quality testing laboratory. The chemical analysis shall be sent to the CVRWQCB and Lake County Health and Community Development Departments for review. If said analysis does not indicate quantities in excess of allowable limits for either human or other important biological elements, especially those of the aquatic ecosystem, then sump materials may be solidified, dried, mixed with native soil and buried in the sump. The location and disposal method of these materials shall be submitted for approval by the CVRWQCB and Lake County Health Department. If hazardous or biologically sensitive materials are found, such materials shall be removed within sixty (60) days to an off-site Class 1, Class II or equivalent waste management unit which is in compliance with all local, state and federal regulations, in a timely manner as directed by the county or appropriate state agency. All wastes shall be hauled in a securely containerized manner to prevent spilling of material.

7. No hydrocarbon base cleaning agent, no waste oils or greases, and no liquid fuel shall be released directly onto the surface, other than incidental leakage from equipment or accidental spills of 5 gallons or less within bermed areas of a drill pad. All such liquids shall be contained and removed from the site. Any accidental discharge of the materials mentioned above shall be removed and properly disposed of by the permit holder, and immediately reported to the Community Development and Health Departments.

8. If the sumps are used for a total time period longer than one year, it shall meet the requirements of Subchapter 15, Chapter 3, Title 23, California Administration Code. The permit holder shall immediately inform the County Health Department and CVRWQBC of this occurrence. If hazardous or biologically sensitive materials are present, and if directed by the County Health and Planning Departments or CVRWQBC, the permit holder shall remove sump materials, modify the sump and/or monitor groundwater consistent with Lake County and CVRWQBC permit conditions.

9. The permit holder shall ensure that any hazardous waste hauler under contract to the permit holder and operating on or off the leasehold is operating in compliance with all DOT Hazardous Waste Regulations, including placarding.

10. The DRAVO or an equivalent process may be installed and utilized on any drill site and liquid wastes may be transported from other drill sites on the leasehold to the selected DRAVO location(s) in accordance with condition C. 2. of this use permit. Plans and specifications shall be submitted to the Health and Community Development Departments for review and approval fifteen (15) days prior to installation of the facility.

11. If known hazardous materials are stored on site for more than thirty (30) days, the permit holder shall obtain a determination from the DOHS that the requirements of a Hazardous Waste Facility Permit have been satisfied.

12. All hazardous wastes are to be taken to a facility permitted by the California Department of Health Services to accept such wastes.

13. When sumps contain liquid or solid wastes, they shall be enclosed with field fence six (6) feet in height to prevent access by livestock, wildlife and unauthorized persons.

14. Pipeline components which may reach a temperature of 140 degrees Fahrenheit or higher, where accessible to human reach, shall be designed to prevent inadvertent human burn injury.

15. Sanitary and hand washing facilities shall be provided at each drill site during well drilling, in full compliance with all rules and regulations of the Lake County Health Department.

D. ACCESSORY ACTIVITIES

1. Accessory activities to the drilling and production of geothermal resources include drill pipe maintenance, steam line and valve fabrication, equipment maintenance, welding and materials storage, and other activities specifically related to drilling and production of geothermal resources.

2. The fenced area and enclosed steel building west of the control building shall be used for drilling and production materials storage. This fenced area shall not exceed 99,500 sq.ft. In addition, equipment maintenance, welding and steam line and valve repair is allowed. Welding may also be conducted on the gravel area east of the control building. Surface coverage shall not exceed 10,000 sq.ft.

3. Because most drill pipe straightening and hard banding will occur off the leasehold, only limited amounts of this activity shall occur. Drill pipe maintenance, hard banding and straightening is allowed within the bermed area of drill pads, and is limited to twenty-five (25) days per year, from 7:00 am to 7:00 pm daily.

4. When each well drilling sequence has been completed, permit holder shall remove all drilling equipment and clean pad within thirty (30) days, unless drilling of other wells in the pad is immediately scheduled to commence within forty-five (45) days. All drill pads not having drilling activities shall be kept clean and neat in appearance and shall not be used for equipment and materials storage.

E. TO PROTECT AGAINST SURFACE WATER DEGRADATION

1. In order to preserve the hydrologic integrity of this leaseholder area, permit holder shall legally obtain by right, purchase or agreement all water used in the drilling process, dust control or steam production, and provide supporting documentation to the Community Development Department. If possible, all water used for this project shall be obtained from leaseholder water wells. Prior to using surface waters for this project, the permit holder shall provide verification that well water is not available or not sufficient for project needs.

2. All areas on each pad containing potentially hazardous materials, including the equipment service and fuel transfer areas and the area occupied by the drilling rig, shall drain to the sumps, or upon closure of the sumps to a drainage catchment basin approved by the CVRWQCB and the Community Development Department. No sump materials shall be allowed on the pad unless they are in compliance with the conditions of the approved DRAVO Plan identified in C. 10, or the solids separation system discussed in C.2 of this use permit.

   All other areas with equipment service, fuel transfer, or potentially hazardous materials shall be compacted to 95% and be bermed as described in condition B.7 of this use permit. It is understood that spraying of hydrocarbon based fluids or application of solvents or other potentially hazardous materials shall not be conducted in the storage and welding areas adjacent to the control building and identified on the approved plan of development. If violations of this condition occur, impermeable catch basins and more extensive berming shall be required to protect water quality in the unnamed tributary (Cow Creek) of High Valley Creek.

3. Permit holder shall monitor or contract to monitor water quality in compliance with all CVRWQCB requirements, and aquatic biology in unnamed tributary (Cow Creek) of High Valley Creek in the vicinity of the Francisco pad expansion. Type, location and frequency of testing shall be determined by the Community Development and Health Departments in consultation with CVRWQCB. Said monitoring proposal shall be submitted and approved by the Community Development and Health Departments prior to issuance of a grading permit for pad construction. The permit holder shall coordinate water monitoring activities with the Department of Water Resources.

4. If the permit holder elects to conduct or participate in a watershed or regional water quality monitoring program, it can be substituted for the requirements of E.3. Such a proposal must be submitted to and accepted by the Community Development and Health Departments in consultation with CVRWQCB prior to termination of the monitoring outline in E.3.

5. In addition to the periodic water monitoring discussed in E.3 above, permit holder shall conduct a continuous water quality monitoring program similar to that identified in Attachment 3 of this use permit. Plans and locations for this continuous water quality monitoring program shall be submitted to and

approved by the Lake County Community Development and Health Departments prior to pad, road, or pipeline construction. Specific design for this program shall be approved by the Community Development and Health Departments in consultation with CVRWQCB, and shall be operational prior to well drilling on new or expanded drill pads.

The permit holder is encouraged to cooperate with other area developers to implement this continuous water quality program in a cost effective manner.

6. The injection of water from on or off site surfaces or groundwater sources is prohibited except for rainwater and other sump fluids, and steam condensate. The injection of wastewater shall be subject to approval by the County Health Department.

7. Applicant shall comply with all provisions of the waste discharge requirements approved by the CVRWQCB and all other state laws and regulations pertaining to waste hauling and water quality.

F. TO PROTECT AIR QUALITY:

1. Applicant shall meet all regulations and standards set by the Lake County Air Quality Management District (LAQMD) and utilize on a continuous basis the state of the art of H_2S technology. All conditions of the LAQMD Authority to Construct and Permit to Operate are herein referenced and made part of this use permit. This use permit does not supersede the authority of said District in anyway.

2. After completion of geothermal wells, the H_2S emissions during standby venting of steam shall be either abated to an acceptable level per Air Quality Management District rules and regulations or standby venting shall be curtailed to the level necessary to attain emission limitations. Curtailment methods to be utilized shall include the shutting in of geothermal wells in accordance with established procedures.

3. Permit holder shall minimize vehicular dust on unpaved roads and drill pads during construction and operation by the use of water or other acceptable dust suppressant or palliative approved by LCAQMD.

4. Permit holder shall provide accurate chemical analysis of the geothermal resource if it is encountered, when required by the Lake County Air Quality Management District.

5. The analysis shall include accurate "wet chemistry" and gas chromatograph determinations as referred to in the LCAQMD permits. Heavy metals such as lead, chromium, arsenic, mercury and cadmium should be determined as well as substances such as radon, hydrogen sulfide, boron, manganese, methane, fluoride, ammonia and carbon dioxide. The analysis should also include pH.

6. Permit holder shall enter into agreements with Department of Water Resources or other parties as necessary and provide a written commitment and preliminary design of abatement systems as described in the LCAQMD modified Determination of Compliance dated February 2, 1982.

G. TO PROTECT AGAINST NOISE EXPOSURE:

1. The permit holder shall not exceed a maximum noise standard of Ldn 50 dBA at residential receptors. The permit holder shall design project components to minimize noise emissions generally consistent with the best available control technology (BACT) as described on pages 222-228 of the Union Oil Unit 21 Steam field Use Permit No. UP 83-41 and the recommended mitigation measures identified in the Supplemental EIR and included in this use permit as Attachment 4. The Noise Control Officer shall determine BACT for each

drill site consistent with the Lake County General Plan and the project EIR.

2. If measurements by the Community Development Department indicate a possible violation of G.1, a measurement of the source noise in an appropriate location in the immediate vicinity of the source may be made to determine if the source noise is sufficient to cause the level measured at G.1 to exceed 50 dBA Ldn using the inverse square law.

3. These regulations shall be adopted until a noise control ordinance is approved by the Board of Supervisors. Applicant agrees that the Planning Commission shall have the right to substitute the conditions of a general noise control ordinance for the conditions of this section when adopted by the Board of Supervisors. It is understood by the Planning Commission and permit holder that mufflers of advance design will be required for pertinent geothermal operations in order to meet these standards and that extraordinary mitigative techniques such as lead/vinyl barriers and the wrapping of the drill rig platforms may be necessary to meet the noise standards of Section G-l and G-2.

4. It is stipulated that the Community Development Department will be spot monitoring noise levels in the vicinity of the proposed land use and that findings resulting from said monitoring may require the permit holder, his contractors or agents to provide continuous noise level monitoring and readings as may be directed by the Community Development Department. Noise problems such as brake squeal, low level engine rumble, etc., substantiated by public complaints may result in the Community Development Department imposing more stringent noise control techniques upon permit holder such as the use of hospital grade mufflers on generators and air compressors, extensive use of noise barriers and enclosure of all noise generating equipment in a "super pad" concept as described in the Final EIR (dated June 1986). It is the permit holders' intent to address low level and persistent noises associated with large diesel engines in the specific plan required in condition G.8.3 of this use permit.

5. It is also stipulated that the Community Development Department has jurisdiction over noise investigation procedures and enforcement.

6. The permit holder shall, except in cases of verified emergency or unforeseen unusual need, schedule delivery of supplies and travel by large vehicles through High Valley Road to the hours of 7:00 a.m. to 7:00 p.m. ***Monday through Friday.*** The use of ~~leasehold roads~~ ***High Valley Road between Bottle Rock Road and the Francisco Lease boundary*** by heavy vehicles or equipment shall be ~~strongly discouraged~~ ***prohibited*** on Saturdays, Sundays, all legal holidays, and during school bus hours, except in verified emergency or unforeseen unusual need. For the purposes of this permit unforeseen unusual need is defined as well repair or new drilling operations within the Francisco leasehold that once started, cannot be stopped until completed, and which require resupply of materials or equipment that cannot otherwise be staged during weekdays. ***In cases where weekend commercial truck traffic may be necessary due to unforeseen unusual need, the permit holder shall notify the Community Development Department a minimum of 24 hours in advance with reasons for the weekend delivery. An email list of High Valley Road residents shall be maintained by the Community Development Department and residents shall be notified when weekend truck traffic is authorized. If it is not possible to provide 24 hour advanced notification, the permit holder shall distribute an email to the High Valley Road residents and the Community Development Department that describes the reason for the weekend commercial truck traffic, estimated time that the delivery will occur, and number of trucks expected.***

The hours of large truck traffic, defined as vehicles over one (1) ton capacity, shall be restricted to the hours from 7:00 a.m. to 7:00 p.m., except when

setting casing and in cases of verified emergency or unforeseen unusual need. An emergency is defined for the purpose of this permit as a spill, accident, imminent loss of equipment or other unforeseen event requiring immediate action to protect public health, safety or welfare. All such emergencies shall be reported to the Community Development Department as soon as possible and in no case more than one hour after occurrence.

7. Drill pipes shall not be laid in bins between the hours of 7 p.m. and 7 a.m. the following day.

8. The permit holder shall prepare or cause to be prepared a revised leasehold noise control plan based on the best available control technology. Said plan shall emphasize preventative rather than reactive noise abatement techniques as recommended in the Supplemental EIR and included in this use permit as attachment 4. This plan shall provide flexibility to allow for special circumstances which may develop as a result of problems related to borehole geology, lost drilling tools, fishing events and unanticipated large steam entries. These special circumstances and abatement strategies shall be described in the noise control plan. The permit holder shall implement the noise mitigation measures approved by the Community Development Department. The noise control plan shall be submitted no less than thirty (30) days in advance of any additional pad construction or drilling, and fifteen (15) days thereafter, and approved by the Community Development Department prior to construction or well drilling on any new or expanded pads.

   Specific noise control plans shall be submitted and approved for the following project stages, and reviewed every two years at a minimum:

   1) Drilling on Coleman and Francisco pad extension.

   2) Road and pad construction.

   3) Each drilling operation. Plans shall be submitted no less than fourteen (14) days prior to commencement of drilling.

   4) Operational Plan Update.

9. The use of truck engine brakes on High Valley Road shall be prohibited except in cases of brake fade or failure where the use of an engine brake is necessary for safety.

H. TO PROTECT ARCHAEOLOGICAL RESOURCES:

1. Archaeological sites identified on pages 125-127 of the McCulloch Department of Water Resources Bottlerock Steamfield EIR shall be preserved in their existing state. No excavation or disturbance by the permit holder or his contractors shall be permitted at these archaeological sites unless mitigated, subject to approval by the Community Development Department and Sonoma State University's Resources Facility.

I. TO CONTROL VISUAL IMPACTS:

1. A program of long-term site project maintenance shall be developed and implemented by the permit holder to ensure continued performance of project components. To achieve this goal, permit holder shall submit to the Community Development Department for approval a **scenic enhancement plan** to include the following project components: 1) landscape plans for the control building, parking lot, storage and welding areas; 2) locations for temporary storage of equipment and material on pads during times of drilling and construction 3) screening of the storage area west of the control building shall include landscaping and wood slats in fencing. Screening of the welding area east of the control building shall include a redwood perimeter fence at

least six feet in height. All equipment not specifically used for drilling activities shall be stored within the fenced area immediately west of the control building. This plan shall be submitted within ninety (90) days of approval of this use permit and shall be approved prior to additional well drilling or pad construction.

2. Pipelines shall be colored to provide maximum color compatibility with, the vegetation type through which it is routed. Pipeline color shall be the same as existing pipelines in the leasehold unless otherwise approved by the Community Development Director.

3. On visual edges such as ridgelines, low profile design shall be employed. In such cases, expansion loops shall be laid horizontally, not vertically.

4. All pad, road, and pipeline sites shall utilize existing vegetation and topography to maximize visual screening where feasible.

5. All lights shall be shielded or directed away from adjacent residential or populated areas and consistent with OSHA and FAA requirements. Lighting plans, including shielding methods, light placement, etc., shall he submitted to the Community Development Department for review and approval thirty (30) days to new pad construction or expansion. Visual impacts shall be minimized at night at residences and to the portion of Bottlerock Road from which the drilling mast is visible.

J. UPON WELL ABANDONMENT:

1. The permit holder shall abandon any well in accord with the California Division of Oil, Gas and Geothermal Resources regulations.

2. Permit holder shall refill sump and grade pad to reasonably restore a natural ground contour, unless an alternative is approved by the Community Development Department in consultation with the property owner and the CVRWQCB.

3. Permit holder shall remove all pipelines and supports not necessary for field operation.

4. Permit holder shall revegetate the pad, sump and all graded areas with native grasses and woody vegetation that can be tolerantly sustained in accord with recommendations of the re-vegetation consultant or the procedure in Condition A.1.

5. The permit holder shall submit a reclamation plan at the time of abandonment of any project facility for review and approval by the Community Development Director, including re-vegetation, grading, drainage and maintenance plans.

K. RE-ENTRY OF PRODUCTION OR SUSPENDED WELL BORES:

1. Applicant may re-drill or otherwise re-enter the same well bore of any of the twenty-seven (27) wells authorized under this use permit during the life of this permit as long as all conditions of the use permit are met.

L. SEVERABILITY:

1. If any section, subsection, sentence, clause or phrase of this permit is for any reason held by a court of competent jurisdiction to be invalid, such decision shall not affect the validity of the remaining portions of the use permit. The Board of Supervisors hereby declares that it would have passed this use permit and each section, subsection, sentence, clause and phrase hereof irrespective

of the fact that any one or more sections, subsections, clauses or phrases are declared invalid.

M. PUBLIC HEALTH AND SAFETY:

1. In the event of casing blowout or other uncontrolled venting, the permit holder shall move immediately to control the vent. No more than 24 hours shall elapse from the date of the uncontrolled vent to the date of equipment relocation to secure it.

2. Applicant shall comply with the requirements of the fire prevention practices and measures as prescribed by Cal Fire and/or County of Lake. An emergency response contingency plan shall be submitted for approval by the Community Development Department. Fire access maps indicating streets and signing shall be provided to the appropriate fire district(s).

3. All extra-wide and slow moving vehicles shall be preceded by a flag car while on public roadways. All hazardous waste generated on site shall be shipped in accordance with all state and federal regulations, and all necessary permits or approvals shall be obtained from CHP (California Highway Patrol).

   Prior to entering the security gate onto high valley road, the permit holder shall provide all truck drivers with a detailed map of the area in which they are traversing. Alternatively, a site map shall be distributed by the permit holder with each service agreement issued to vendors who will be performing work on the leasehold The map should include: a) all dangerous curves/elevation points--highlighted in red, b) speed limits/reduced limits depicted on the map, c) safe locations for vehicle inspections, and d) a serious warning clause/penalties if drivers violate any safety procedures while travelling on private roads.

   The permit holder shall provide a vehicle inspection area on the Francisco leasehold and designate it as the location for truck drivers to conduct their DOT-required vehicle safety inspections. The inspection shall include brakes, vehicle connection, wheels/tires, valves, tanks, etc. and other equipment as outlined in Title 13 CAC. After loading, a material inspection for leaks in the system shall be conducted. The permit holder shall also provide log-in sheets at the designated inspection area for truck drivers to complete, acknowledging the date and time that they conducted their vehicle safety inspections.

4. The permit holder shall be responsible for repair of any direct verifiable damage to public roadways resulting from construction or operation of this project, including actions by contractors or subcontractors.

5. Sanitary and hand washing facilities shall be provided at each drill site during well drilling, in full compliance with all rules and regulations of the Lake County Health Department.

6. The permit holder shall comply with all safety requirements of Cal/OSHA, including an accident prevention program, and conduct Cal/OSHA on-site worker safety inspections during construction and operation of the steamfield.

7. The permit holder shall surface all project roads with a double chip seal surface, or equivalent surface approved by the Community Development Department. Surfacing shall commence upon initiation of pad, road or pipeline construction and shall be completed within 3 years as specifically provided for in the required **phasing plan.** Inspection costs for this surfacing shall be paid in accordance with condition B.10 of this use permit. These roads and road drainage improvements shall be maintained throughout the life of the project.

8. Applicant shall maintain files on all supplemental plans and ongoing mitigation measures required by this Use Permit. An annual report summarizing the primary compliance activities during the previous year shall be submitted to the Community Development Department.

9. Applicant shall enter into a compliance monitoring inspection agreement with the County of Lake. Said agreement shall provide for reimbursement to the County for the actual cost of inspection and monitoring, limited to staff time, equipment repair, and mileage, for the life of the project. If an area-wide fee schedule for inspection services is adopted in the future, it shall replace this condition.

10. The permit holder agrees that the Lake County Planning Commission shall have the right to require the permit holder to participate in a Geysers area seismic monitoring program on a pro rata basis, if recommended by the Lake County General Plan.

11. Provision shall be made for adequate access by firefighting equipment to the site, and fire access maps shall be provided to the appropriate fire district(s).

12. Permit holder shall provide the Lake County Air Quality Management District with a venting plan which details the equipment and procedures which will be employed during power plant outages (stacking periods) and during maintenance venting. This plan shall include proposed hours during which planned maintenance venting will occur as well as projected time which will elapse between unscheduled power plant outages and the throttling back of wells to minimum bleed. The plan shall include personnel available for unscheduled outages and projected response time of those personnel.

13. Permit holder shall submit a revised traffic control and road maintenance plan for High Valley Road. This plan shall require car pooling and/or bussing of employees whenever possible and take into account the great increase in heavy truck traffic which will accompany full field development and expansion of the Bottlerock site. The plan shall also address sign requirements and the coordination of heavy truck traffic (on Sulphur Creek Road) with the school district to reduce safety concerns to school children. The plan shall suggest mitigations which will prevent or alleviate the concomitant increase in danger due to traffic accidents and damage to the road which may occur following development. This plan shall be approved prior to issuance of a grading permit for pad; road, or pipeline construction.

14. Pipeline routes and design must be consistent with the approved plan of development, and be approved by the Community Development Department prior to construction.

15. All supplemental plans required by this permit, including but not limited to re-vegetation, sediment, drainage monitoring and control, scenic enhancement, phasing, continuous water monitoring, traffic control and maintenance, noise abatement, emergency fire and medical evacuation and accidental spills, shall be incorporated into the use permit once approved by the responsible department or official. Public notice of all plans and reports shall be provided to all property owners within 700 feet of the project property lines, as well as to the Planning Commission, at least two (2) weeks prior to any action. Any dispute regarding the adequacy of those plans may be appealed by any person to the Planning Commission for a final determination.

16. A financial assurance agreement, certificate of deposit or bond, satisfactory in form and content to the Lake County Counsel, shall be provided and maintained by the permit holder to insure cleanup in case of spills, landslides, mishaps and site reclamation upon abandonment. Said financial agreement shall make available up to $350,000.00 (to be adjusted every two (2) years in accordance with the San Francisco Area Consumer Price Index) for this purpose and shall be payable to the County of Lake and require County

approval to terminate.

II. IN GRANTING THIS USE PERMIT, THE LAKE COUNTY PLANNING COMMISSION MAKES THE FOLLOWING FINDINGS:

A. That this use permit does not abridge or supersede the regulatory powers or permit requirements of any state or federal agency of any special district or other Lake County department or division which may retain an advisory or regulatory function as specified by statute or ordinance, nor does this use permit grant any title or other real property solely to this permit holder or his assigns.

B. That the granting of this use permit is in the general public interest and that environmental and performance parameters conditioning the proposed activity as specified in this use permit and as contained in the document entitled "Conditions, Procedures and Performance Standards for Geothermal Regulations, County of Lake," now referenced and made a part hereof, will allow the proposed activity with adequate safeguards to the welfare of the people of Lake County at large and to the people residing in the vicinity of said activity.

C. The revised noise standard of Ldn 50 dBA will reduce the likelihood of disturbances to residents in the project area.

D. Installation of alarms and rigid transfer piping, continuous water quality monitoring, and implementation of a revised contingency spill plan will reduce the likelihood of water quality degradation and further protect public health.

E. Erosion control, sediment/drainage control, re-vegetation, scenic enhancement, project phasing, spill protection, traffic control and road maintenance measures have been adequately addressed by permit conditions and supplemental plans which shall be incorporated into this permit.

F. Air quality standards have not been lowered and the EIC abatement system has been replaced by equivalent air pollution control measures as required by the Lake County Air Quality Management District.

G. The permit holder agrees to comply with recommended mitigation measures from the Supplemental EIR as stated in Attachment 5 of the staff report dated July 20, 1982, mitigations from Supplemental EIR dated December 20, 1982, mitigations from Supplemental EIR dated December 1985 and June 1986, and included as attachments 1 through 4, and use permit revisions dated June 26, 1986.

H. This use permit is consistent with the Lake County General Plan.

I. The financial assurance agreement for spills, landslides, mishaps and site restoration required by this use permit will insure that clean up occurs in a safe and expeditious manner.

J. The permit compliance monitoring agreement required by this use permit will provide for reimbursement of costs incurred by County staff.

K. Implementation of project phasing and scenic enhancement plans will provide for orderly and rational resource development, while minimizing surface disturbance and environmental impacts.

L. The unavoidable adverse impacts from this project that were lessened but not completely avoided are overridden by the desirability to develop the geothermal resource for energy supplies, the additional revenue accruing to Lake County through utilization of this natural resource, and the creation of new jobs during construction and operation of the steamfield.

III. THE PLANNING COMMISSION FURTHER DECLARES THAT:

1. This use permit may be modified or revoked if the Lake County Planning Commission finds that the use to which this permit is put is detrimental to the health, safety, morals, comfort and general welfare of the persons residing or working in the neighborhood of such use, or if it is injurious or detrimental to property and improvements in the neighborhood or to the general welfare of the county, or is a nuisance.

Date of Expiration: June 26, 2013

Date of Issuance: July 22, 1986

Date of Modification: February 13, 2011

Richard J. Coel
Community Development Director

By: Danae Bowen
Danae Bowen, Office Assistant III

ACCEPTANCE

I have read and understood the foregoing use permit and agree to each and every term and condition thereof.

Date: 1/13/12

Bill Hawns
Applicant or Authorized Agent

EXHIBIT 105

COUNTY OF LAKE

USE PERMIT 09-01

BRP GEORESOURCE STEAMFIELD PROJECT

Pursuant to the approval of the Lake County Planning Commission on January 13, 2011, and as amended by the Lake County Board of Supervisors on March 15, 2011 there is hereby granted to Bottle Rock Power, LLC, P.O. Box 326 Cobb, CA 95426, a Use Permit for the construction of a geothermal steamfield including two well pads and up to twenty-two (22) geothermal development wells. Up to eleven (11) geothermal wells per pad may be constructed during the life of this project. Up to twenty-two (22) redrilling of well bores in new directions and/or replacement wells and unlimited rework of the 22 wells is also authorized. This project approval also includes associated support equipment necessary for geothermal field operations including but not limited to steam and condensate pipelines, sediment catchment basins, water monitoring facilities, access roads, and reinjection wells, along with incidental uses and activities; further described in the conditions of this use permit and identified in the project description and site plan contained within the Final EIR Certified for this project. The project is located at 6743, 6825, 7358, 7385 and 7500 High Valley Road identified as Lake County Assessors parcel numbers 011-012-97 and 013-002-01, 03, 04 & 05, within the BRP GeoResource Leasehold and the Francisco Leasehold.

The Planning Commission finds that the establishment and maintenance or operation of the use for which application is made will not, under the circumstances of this particular case, be detrimental to the health, safety, peace, morals, comfort and general welfare of persons residing or working in the neighborhood of such use, or be detrimental to the general welfare of the County.

The permit holder attests to having obtained all necessary easement rights.

The Planning Commission has caused to be prepared an Environmental Impact Report on the subject of this application and has held public hearings thereon and has carefully considered this matter pursuant to the California Environmental Quality Act and the State CEQA Guidelines pertaining thereto, and pursuant to the Environmental Protection Guidelines of the County of Lake.

THIS APPROVAL IS SUBJECT TO ALL REQUIREMENTS OF THE ATTACHED MITIGATION MONITORING AND REPORTING PROGRAM (Attachment A) AND THE FOLLOWING TERMS AND CONDITIONS:

A. GENERAL

1. Days and hours of operation for facilities shall be twenty-four (24) hours per day, seven (7) days per week, except as specifically amended by conditions herein.

2. No use, structure or development shall occur that is inconsistent with the approved project description and Project Alternative 3 of the Environmental Impact Report Certified by the Planning Commission on December 22, 2010, or with this use permit. The permit holder shall apply for a use permit modification if the permit holder proposes any construction inconsistent with this use permit and the approved plan of development.

3. This use permit approval shall not become effective, operative, vested or final until the California Department of Fish and Game filing fee required or authorized by Section 711.4 of the Fish and Game Code is submitted. Said fee shall be paid within 30 days of project approval (checks to be made payable to the County of Lake).

4. Prior to this use permit having any force or effect, the permit holder shall sign and file with the Lake County Community Development Department an indemnity agreement approved by the County Counsel.

5. No new construction in reliance upon this use permit shall be authorized until the rezoning application has been approved by the Lake County Board of Supervisors to rezone the 60-acre project area from "PDR-BF" to "RL-BF", pursuant to rezone application RZ 09-07.

6. The permit holder agrees to work with the County in the future during any discussions with PG&E concerning potential local benefits from electricity generated at this site.

7. The permit holder agrees to enter into an agreement with the Lake County Watershed Protection District prior to commencement of drilling operations and contribute 50% of costs for the Kelsey Creek flow gauges ($6,000 per year, adjusted at 90% of CPI for US cities) and contribute $11,000 per year to pay for operations and maintenance of the Kelsey Creek Detention Structure (adjusted at 90% of CPI for US cities).

B. TIMING, MITIGATION AND MONITORING, SEVERABILITY

1. The permit holder shall enter into a mitigation monitoring inspection agreement with the County of Lake. This agreement shall provide for reimbursement to the County for the actual cost of inspection and monitoring, limited to staff time and mileage, for the life of the project.

2. The permit holder shall permit the County of Lake or its representative(s) or designee(s) to make periodic inspections at any reasonable time deemed necessary in order to assure that the activity being performed under authority of this permit is in accordance with the terms and conditions prescribed herein.

3. The permit holder shall maintain files on all supplemental plans and ongoing mitigation measures required by this Use Permit. An annual report summarizing the primary compliance activities during the previous year shall be submitted to the Community Development Department by August 30th of each year.

4. The Planning Commission may modify or revoke the use permit in the future if the Commission finds that the uses to which the permit is put is detrimental to the health, safety, comfort and welfare of the public, or results in a nuisance, or if one or more of the conditions is violated.

5. The Community Development Director may approve minor modifications in writing, which are in substantial conformity with the uses and locations of uses approved by UP 09-01 when, in the opinion of the Community Development Director, such amendments will not result in any significant adverse environmental impacts. All amendment requests shall be in writing and be approved, modified or denied by the Community Development Director in writing. The Director shall provide public notice of the proposed amendment to all property owners within 700 feet of the project property lines at least two (2) weeks prior to any action or an amendment by the Community Development Director. Any dispute regarding the proposed amendment may be appealed to the Planning Commission, or the Director may choose to forward the proposal to the Planning Commission for consideration.

6. The Use Permit shall be valid until December 22, 2040. The Planning Commission may, in its discretion, approve time extensions.

7. The use permit shall be null and void if not vested by December 22, 2012, or if the uses are abandoned for a period of two (2) years.

8. If any section, subsection, sentence, clause or phrase of this permit is for any reason held by a court of competent jurisdiction to be invalid, such decision shall not affect the validity of the remaining portions of the use permit. The Board of Supervisors hereby declares that it would have passed this use permit and each section, subsection, sentence, clause and phrase hereof irrespective of the fact that any one or more sections, subsections, clauses or phrases are declared invalid.

C. BIOLOGICAL RESOURCES:

1. Both well pads, the road, topsoil stockpile sites, steam pipeline and other area of soil disturbance shall be evaluated by a landscape architect, registered forester, plant ecologist or other qualified person acceptable to the Community Development Department and permit holder, to select and program the re-establishment of ground cover and vegetation to include indigenous forage and habitat and provide maximum erosion control.

2. Prior to issuance of grading permits for well pad, service road and pipeline construction, a revegetation plan prepared by a qualified biologist or other qualified professional shall be submitted to the Community Development Department for review and approval. The plan shall be re-evaluated by a qualified biologist during the spring following initial planting, and a report prepared and submitted to the Community Development Department. The report shall indicate which planting techniques were successful or unsuccessful, and what will be done to improve the revegetation program if needed. If deemed by the Community Development Department to be unsuccessful, additional revegetation will be required not later than the immediately succeeding fall season. The revegetation program shall include periodic inspection and upgrading as necessary. All plantings shall be maintained or replanted for the life of the project.

3. Except for large stumps, vegetation removed during construction shall be chipped and re-spread when beneficial as determined by person specified in condition C.1, or burned under the permits required by the Lake County Air Quality Management District. Stumps may be buried outside of engineered fill and embankments.

4. Well discharge shall be directed away from adjacent woody vegetation and populated areas and appropriate energy dissipaters shall be used as required by the Lake County Air Quality Management District (LCAQMD).

5. Access to the well pads shall be restricted to existing roads and proposed roads as defined in the project description and approved site plan included in the Final EIR.

6. Disturbance of vegetation beyond the approved construction perimeter is prohibited.

D. SOIL EROSION, INDUCED LANDSLIDES AND SURFACE GEOLOGIC HAZARDS:

1. Prior to issuance of permits for earthwork related to this project, financial assurance shall be submitted to the Community Development Department to be used in the event that the permit holder is unable to complete the earthwork. In projecting the costs of financial assurances, it shall be assumed, without prejudice or insinuation, that the project could be abandoned by the permit holder and, consequently, the County may need to contract with a third party commercial company for rehabilitation of the site. Rehabilitation shall include the combined process of land treatment and revegetation that minimizes water degradation, air pollution, damage to wildlife habitat, flooding, erosion, and other adverse effects from earthwork, so that the land would not be a danger to public health or safety. The amount of the financial assurances shall be based on the estimated costs of rehabilitation. Cost estimates shall be prepared by a California-registered professional engineer and/or other similarly licensed and qualified professional retained by the permit holder and approved by the Community Development Department. The estimated amount of the financial assurances shall be based on an analysis of physical activities necessary to implement rehabilitation, the unit costs for each of these activities, the number of units of each of these activities, and the actual administrative costs. The analysis shall include cost estimates for labor, equipment, materials, mobilization of equipment, administration, and reasonable profit by a commercial operator. Additionally, a contingency factor of ten (10) percent shall be added to the cost of financial assurances. The permit holder may provide security in the form of a surety bond, trust fund, irrevocable letter of credit from an accredited financial institution, or other method acceptable to the County. These financial assurances shall remain in effect until all earthwork is completed to the satisfaction of the Community Development Department.

2. Plans for drill pads, steam transmission pipelines, and access road shall be prepared by a registered Civil Engineer or other qualified professional. Road, pipeline, and pad locations including cut and fill edges shall be staked on the ground and adjusted as necessary for review and approval by the Community Development Department prior to start of construction. Plans shall include a separate drainage plans and supporting calculations for culvert sizes using acceptable engineering methods. Plans shall show specific provisions for erosion protection along pipeline routes, at culverts, roads and on cut and fill slopes. Sediment catchment basins and their locations shall be included in said plans. Plans, specifications and ground locations shall also be made available for review and approval by the Central Valley Regional Water Quality Control Board (CVRWQCB) prior to construction.

3. Drill pad and road fills shall be compacted to a minimum 90% relative compaction to minimize erosion. If significant erosion occurs as a result of any part of this project, permit holder shall take prompt remedial-action as directed by the Community Development Department. Tests indicating compaction results shall be submitted for approval to the Community Development Department within thirty (30) days of completion.

4. Engineered filled slope banks shall not exceed a gradient of 1-1/2:1. Toes of all fills shall be stabilized with rock and gravel or keyed into stable soil and placed to reduce erosion potential to an absolute minimum on all fill slope banks. Revegetation of slopes shall be carried out as specified in Condition A. unless approved by a Registered Civil Engineer or Geotechnical Engineer and the Community Development Department, cut slopes shall not exceed a gradient of 1-1/2:1.

5. Subdrains shall be provided under all fills where natural drainage courses and seepage are evident, subject to design by a registered Civil Engineer.

6. Prior to earthmoving activities, a grading permit shall be obtained from the Building and Safety Division of the Community Development Department. No grading or vegetation clearing is allowed until a grading permit is obtained. Engineered plans shall be submitted detailing the service road construction and erosion and sediment control measures. Prior to the issuance of the grading permit, the Building Division may require further modifications of the approved plans to insure that the project is consistent with the Lake County Grading Ordinance.

7. No drill pad construction or access road shall be allowed on potentially active landslides, unless properly mitigated, subject to approval by the Community Development Department.

8. Buffer zones of undisturbed vegetation shall be maintained to the maximum width possible on either side of streams, but in no case shall be less than the setbacks established by the Lake County Grading Ordinance from Class I, II and III streams. No geothermal related construction shall take place within this buffer zone unless consistent with the approved project description and site plan. Roads crossing riparian areas shall be minimum safe widths.

9. All grading activity and erosion prevention measures shall be completed and all drainage structures shall be in place and operational prior to October 15 of any year. New grading and excavation activity may not be permitted during the consecutive period from October 15 to April 15. (Extensions for short term grading activities beyond October 15 may be allowed by the Lake County Community Development Director in writing upon dry weather and establishment of a suitable soil moisture specification for any stated activity, consistent with the provisions of the Lake County Grading Ordinance.)

10. In areas requiring removal of vegetation but no grading, root crowns shall be left intact so as to retard soil erosion. Excavated materials shall not be sidecast or pushed over the edges during construction and final grading. Excess earthen materials (rocks, boulders and dirt) shall be removed from the site and disposed of in an approved disposal site. Cut and fill operations shall be carried out so that the down slope roll of rocks, boulders and/or earthen material is prevented.

E. PAD CONSTRUCTION, OPERATION, MAINTENANCE & CLOSURE:

1. The pads shall be designed by a Registered Civil Engineer, consistent with the recommendations of a Geotechnical Engineer.

2. All drilling operations on the BRP GeoResource Leasehold shall utilize sumpless drilling technology. Sumps are not authorized for use by this use permit.

3. Applicant shall prepare a contingency plan for emergencies due to breaks or unexpected deformation of the pipeline or their supports. The Plan shall show who is responsible and what equipment and manpower is available to respond to such an emergency. The plan shall be submitted to the Lake County Community Development Department prior to completion of the first geothermal well. Any updates made to the contingency plan shall be submitted to the Community Development Department within sixty (60) days for review and approval.

4. No hydrocarbon base cleaning agent, no waste oils or greases, and no liquid fuel shall be released directly onto the surface, other than incidental leakage from equipment or accidental spills within bermed areas of a drill pad. All such liquids shall be contained and removed from the site. Any accidental discharge of the materials mentioned above shall be removed and properly disposed of by the permit holder, and immediately reported to the Community Development and Environmental Health Departments.

5. The permit holder shall ensure that any hazardous waste haulers under contract to the permit holder and operating on or off the leasehold is operating in compliance with all DOT Hazardous Waste Regulations, including placarding.

6. If known hazardous materials are stored on site for more than thirty (30) days, the permit holder shall obtain a determination from the DOHS that the requirements of a Hazardous Waste Facility Permit have been satisfied.

7. All hazardous wastes are to be taken to a facility permitted by the California Department of Health Services to accept such wastes.

8. Pipeline components which may reach a temperature of 140 degrees Fahrenheit or higher, where accessible to human reach, shall be designed and constructed to prevent inadvertent human burn injury.

F. ACCESSORY ACTIVITIES

1. Drill pipe maintenance, steam line and valve fabrication, equipment maintenance, welding and materials storage, and other activities specifically related to drilling and production of geothermal resources shall be conducted on the existing steam field maintenance and storage yard located adjacent to the Francisco well pad, or on the new well pads, as necessary.

2. When each well drilling sequence has been completed, permit holder shall remove all drilling equipment and clean pad within thirty (30) days, unless drilling of other wells on the pad is immediately scheduled to commence within forty-five (45) days. All drill pads not having drilling activities shall be kept clean and neat in appearance and shall not be used for equipment and materials storage.

G. TO PROTECT AGAINST SURFACE WATER DEGRADATION

1. The permit holder shall obtain by right, purchase or agreement all water used for the initial pad construction, for construction and on-going dust control. Groundwater shall not be used for reinjection purposes. Water used for this project shall be obtained from leaseholder water wells, with the exception of steam condensate used for reinjection. Use of surface water is prohibited.

2. All areas on each pad containing potentially hazardous materials, including the equipment service and fuel transfer areas and the area occupied by the drilling rig, shall drain to sediment basins. Hazardous materials shall not be allowed on the pads unless they are in compliance with all safety regulations and the requirements of the Lake County Environmental Health Division. All other areas used for equipment service, fuel transfer, or potentially hazardous materials shall be compacted to 90% and be bermed. Spraying of hydrocarbon based fluids or application of solvents or other potentially hazardous materials shall not be conducted in the storage and welding areas adjacent to the steam field office. If violations of this condition occur, impermeable catch basins and more extensive berming shall be required to protect water quality.

3. Permit holder shall monitor or contract to monitor water quality in compliance with all CVRWQCB requirements, and aquatic biology in High Valley Creek in the vicinity of the two well pads Type, location and frequency of testing shall be determined by the Community Development and Health Departments in consultation with CVRWQCB. Said monitoring proposal shall be submitted and approved by the Community Development and Lake County Environmental Health Departments prior to issuance of a grading permit for pad construction.

4. If the permit holder elects to conduct or participate in a watershed or regional water quality monitoring program, it can be substituted for the requirements of condition G.3. Such a proposal must be submitted to and accepted by the Community Development and Health Departments in consultation with CVRWQCB prior to termination of the monitoring outline in E.3.

5. In addition to the periodic water monitoring discussed in condition G.3 above, permit holder shall conduct a continuous water quality monitoring program similar to that identified in Attachment 3 of this use permit. Plans and locations for this continuous water quality monitoring program shall be submitted to and approved by the Lake County Community Development and Health Departments prior to pad, road, or pipeline construction. Specific design for this program shall be approved by the Community Development and Health Departments in consultation with CVRWQCB, and shall be operational prior to construction of the well pads.

6. The permit holder is encouraged to cooperate with other area geothermal operators to implement this continuous water quality program in a cost effective manner.

7. Best Management Practices (BMPs) to control erosion and sedimentation from all construction activities shall be installed onsite prior to the onset of first rains. BMPs shall be monitored throughout the rainy season and maintained in working order until the site is stabilized. Grading shall not occur during the winter months without special approval from the CDD Director and submission of an erosion control plan for winter grading.

8. Prior to the commencement of grading or construction, the permit holder shall submit Notice of Intent (NOI) to comply with the Construction General Permit with the Central Valley Regional Water Quality Control Board (CVRWQCB) along with a Storm Water Pollution Prevention Plan (SWPPP). A copy of the NOI and SWPPP shall be submitted to the CDD.

9. Prior to the issuance of a grading or building permit, the permit holder shall submit final engineered drainage plans and calculations to be reviewed and approved by the Water Resources Engineer. The plans should include designs and BMPs that will prevent a substantial increase in rate and direction of surface flow offsite.

10. The injection of water from on or off site surfaces or groundwater sources is prohibited except for rainwater and steam condensate. The injection of wastewater shall be subject to approval by the County Health Department.

11. Applicant shall comply with all provisions of the waste discharge requirements approved by the CVRWQCB and all other state laws and regulations pertaining to waste hauling and water quality.

H. AIR QUALITY:

1. Applicant shall meet all regulations and standards set by the Lake County Air Quality Management District (LAQMD) and utilize on a continuous basis the state of the art of H_2S technology. All conditions of the LAQMD Authority to Construct and Permit to Operate are herein referenced and made part of this use permit. This use permit does not supersede the authority of said District in anyway.

2. After completion of geothermal wells, the H2S emissions during standby venting of steam shall be either abated to an acceptable level per Air Quality Management District rules and regulations or standby venting shall be curtailed to the level necessary to attain emission limitations. Curtailment methods to be utilized shall include the shutting in of geothermal wells in accordance with established procedures.

3. If air quality exceeds of H_2S occur as a result of drilling operations or ongoing steam field operations on either of the BRP GeoResources well pads, the permit holder shall provide the option for temporary relocation of affected Binkley Family Ranch residents until H_2S levels return to safe levels. In such cases, the permit holder shall provide temporary lodging for said resident(s) at a local lodging facility (Cobb or Kelseyville), at the permit holder's expense.

4. Permit holder shall minimize vehicular dust on unpaved roads and drill pads during construction and operation by the use of water or other acceptable dust palliative approved by LCAQMD.

5. Permit holder shall provide accurate chemical analysis of the geothermal resource if it is encountered, when required by the Lake County Air Quality Management District. The analysis shall include accurate "wet chemistry" and gas chromatograph determinations as referred to in the LCAQMD permits. Heavy metals such as lead, chromium, arsenic, mercury and cadmium should be determined as well as substances such as radon, hydrogen sulfide, boron, manganese, methane, fluoride, ammonia and carbon dioxide. The analysis should also include pH.

6. Prior to drilling any wells on the BRP GeoResource Leasehold, the permit holder shall assist with the funding of a portable air monitoring station, to be operated by the LCAQMD.

7. Permit holder shall provide the Lake County Air Quality Management District with a venting plan which details the equipment and procedures which will be employed during power plant outages (stacking periods) and during maintenance venting. This plan shall include proposed hours during which planned maintenance venting will occur as well as projected time which will elapse between unscheduled power plant outages and the throttling back of wells to minimum bleed. The plan shall include personnel available for unscheduled outages and projected response time of those personnel.

8. In the event of casing blowout or other uncontrolled venting, the permit holder shall move immediately to control the vent. No more than 24 hours shall elapse from the date of the uncontrolled vent to the date of equipment relocation to secure it.

9. All leasehold roads used by the permit holder shall be regularly monitored for soil accumulation and shall be kept clean, in accordance with the mitigation measures outlined in the approved MMRP (Attachment A of this use permit).

10. BRP shall fund H_2S monitoring at the Fletcher residence, to be coordinated and/or managed by the LCAQMD. Frequency and timing of any such monitoring shall be as determined by the LCAQMD. If found to significantly contribute to an impact, BRP shall work with the LCAQMD and Community Development Department to mitigate the impact.

I. TO PROTECT AGAINST NOISE EXPOSURE:

1. The permit holder shall not exceed a maximum noise standard of Ldn 50 dBA at residential receptors. The permit holder shall design project components to minimize noise emissions

generally consistent with the best available control technology (BACT). The Community Development Department shall determine BACT for each drill site consistent with the EIR certified for the project and the approved MMRP.

2. If measurements by the Community Development Department indicate a possible violation of Condition I.1, a measurement of the source noise in an appropriate location in the immediate vicinity of the source may be made to determine if the source noise is sufficient to cause the level measured to exceed 50 dBA Ldn using the inverse square law.

3. Mufflers of advance design will be required for pertinent geothermal equipment.

4. Mounts for sound walls shall be permanently installed on the well pads and sound walls shall be installed prior to any drilling activity or other maintenance activities where a well rig is to be used. The location of sound walls shall be reviewed and approved by the Community Development Department prior to installation.

5. Drill rig platforms shall be wrapped with sound-deadening blankets prior to drill rig operation.

6. Not more than two (2) drilling rigs shall be operated simultaneously within the BRP GeoResource Leasehold.

7. Prior to commencement of new drilling, or other operations where a rig is to be operated, the permit holder shall schedule an inspection with the Community Development Department for verification that all appropriate noise reducing measures are installed.

8. Drill pipes shall not be laid in bins between the hours of 7 p.m. and 7 a.m. the following day.

9. The use of truck engine brakes on High Valley Road shall be prohibited except in cases of brake fade or failure where the use of an engine brake is necessary for safety.

J. ACCESS TO PROJECT AREA

1. Should an alternative access route be secured by the permit holder through either Cold Water Creek Road or Glenbrook Road, this use permit authorizes all construction traffic and well rig traffic to utilize said road upon review and verification by Cal Fire and the Community Development Department that the road meets minimum safety requirements for said construction traffic.

2. The Permit holder shall comply with all requirements of the Traffic Control and Road Maintenance Plan for High Valley Road (Attachment B) for any project traffic using High Valley Road between the Francisco Leasehold and Bottle Rock Rd.

3. When accessing High Valley Road from Bottle Rock Road, The permit holder shall, except in cases of verified emergency or unforeseen unusual need, schedule delivery of supplies and travel by large vehicles through High Valley Road to the hours of 7:00 a.m. to 7:00 p.m. Monday through Friday. The use of High Valley Road between Bottle Rock Road and the Francisco Lease boundary by heavy vehicles or equipment shall be prohibited on Saturdays, Sundays, all legal holidays, and during school bus hours, except in verified emergency or unforeseen unusual need. For the purposes of this permit unforeseen unusual need is defined as well repair or new drilling operations within the Binkley leasehold that once started, cannot be stopped until completed, and which require resupply of materials or equipment that cannot otherwise be staged during weekdays. In cases where weekend commercial truck traffic may be necessary due to unforeseen unusual need, the permit holder shall notify the Community Development Department a minimum of 24 hours in advance with reasons for the weekend delivery. An email list of High Valley Road residents shall be maintained by the Community Development Department and residents shall be notified when weekend truck traffic is authorized. If it is not possible to provide 24 hour advanced notification, the permit holder shall distribute an email to the High Valley Road residents and the Community Development Department that describes the

reason for the weekend commercial truck traffic, estimated time that the delivery will occur, and number of trucks expected.

4. When accessing High Valley Road from Bottle Rock Road, the hours of large truck traffic, defined as vehicles over one (1) ton capacity, shall be restricted to the hours from 7:00 a.m. to 7:00 p.m., except when setting casing and in cases of verified emergency or unforeseen unusual need. An emergency is defined for the purpose of this permit as a spill, accident, imminent loss of equipment or other unforeseen event requiring immediate action to protect public health, safety or welfare. All such emergencies shall be reported to the Community Development Department as soon as possible and in no case more than one hour after occurrence.

5. The Permit holder shall encourage employees to car pool whenever possible.

6. All traffic associated with the project development and on-going operations of the steam field shall be subject to a 15 MPH speed limit.

7. All leasehold roads used by the permit holder shall be maintained in good repair, with all-weather surfaces approved by the Community Development Department, in accordance with the mitigation measures outlined in the approved MMRP (Attachment A).

8. Access by Binkley Leasehold residents through the BRP GeoResource Leasehold shall be determined by the surface agreement between the surface owner and the permit holder. No access roads shall be blocked within this leasehold unless required by a regulatory agency(s).

K. TO PROTECT ARCHAEOLOGICAL RESOURCES:

1. The Archaeological sites analyzed by the EIR prepared for the BRP GeoResource project shall be preserved in their existing state as specified in the approved MMRP (Attachment A of this use permit). No excavation or disturbance by the permit holder or their contractors shall be permitted at these archaeological sites.

2. If archaeological or paleontological resources are encountered during grading, all work in the immediate area of the find(s) shall cease until a qualified professional is retained to determine the significance of the resources and recommend mitigations to be completed by the permit holder, if necessary, subject to the approval of the Community Development Department.

L. TO CONTROL VISUAL IMPACTS:

1. Prior to operation, pipelines and sound walls shall be colored dark green to provide maximum color compatibility with the surrounding natural environment.

2. All pad, road, and pipeline sites shall utilize existing vegetation and topography to the maximize extent practical for visual screening.

3. Any proposed outdoor lighting shall be shielded or directed downward, away from adjacent residential areas. Details, including shielding methods, light placement, etc., shall be provided to the Community Development Department for review and approval prior to installation.

M. SITE RECLAMATION:

1. The permit holder shall abandon any well in accord with the Bureau of Land Management regulations.

2. The Permit holder shall submit a project site reclamation plan to the Community Development Department for review and approval prior to issuance of grading permits. The

reclamation plan shall including re-vegetation, grading, drainage and maintenance plans, and shall detail how the disturbed areas will be returned to native vegetation upon site closure or abandonment. The Permit holder shall revegetate the pads with native grasses and woody vegetation.

3. The Permit holder shall remove all pipelines and supports not necessary for field operation.

4. Upon site closure, all well pad surfaces shall be covered with topsoil from the approved topsoil stockpile areas, and the pads shall be revegetated in accordance with the approved revegetation plan specified in condition C.2.

N. PUBLIC HEALTH AND SAFETY:

1. The permit holder shall comply with the requirements of the fire prevention practices and measures as prescribed by Cal Fire and/or County of Lake. Prior to commencement of drilling activities on the BRP GeoResource Leasehold, an emergency response contingency plan shall be submitted for approval by the Community Development Department that includes the permit holder's spill response plan & protocols. The permit holder shall work with the Community Development Department and the Office of Emergency Services to develop and maintain a current list of downstream property owners to be notified during any emergency involving surface water contamination (to be updated annually). Fire access maps indicating streets and signing shall be provided to the appropriate fire district(s).

3. All extra-wide and slow moving vehicles shall be preceded by a flag car while on public roadways. All hazardous waste generated on site shall be shipped in accordance with all state and federal regulations, and all necessary permits or approvals shall be obtained from CHP (California Highway Patrol).

4. Prior to entering the security gate onto high valley road, or in any case where an alternate access road is being used, the permit holder shall provide all truck drivers with a detailed map of the area in which they are traversing. Alternatively, a site map shall be distributed by the permit holder with each service agreement issued to vendors who will be performing work on the leasehold The map should include: a) all dangerous curves/elevation points--highlighted in red, b) speed limits/reduced limits depicted on the map, c) safe locations for vehicle inspections, and d) a serious warning clause/penalties if drivers violate any safety procedures while travelling on private roads.

5. The permit holder shall provide a vehicle inspection area on each well pad and designate it as the location for truck drivers to conduct their DOT-required vehicle safety inspections. The inspection shall include brakes, vehicle connection, wheels/tires, valves, tanks, etc. and other equipment as outlined in Title 13 CAC. After loading, a material inspection for leaks in the system shall be conducted. The permit holder shall also provide log-in sheets at the designated inspection area for truck drivers to complete, acknowledging the date and time that they conducted their vehicle safety inspections.

6. The permit holder shall be responsible for repair of any direct verifiable damage to public roadways resulting from construction or operation of this project, including actions by contractors or subcontractors.

7. Sanitary and hand washing facilities shall be provided at each drill site during well drilling, in full compliance with all rules and regulations of the Lake County Health Department.

8. The permit holder shall comply with all safety requirements of Cal/OSHA, including an accident prevention program, and conduct Cal/OSHA on-site worker safety inspections during construction and operation of the steamfield.

9. The permit holder shall surface all project roads with a double chip seal surface, or equivalent surface approved by the Community Development Department. Surfacing shall commence upon initiation of pad, road or pipeline construction and shall be completed once the well pads and pipelines have been constructed. These roads and road drainage

improvements shall be maintained throughout the life of the project.

10. The permit holder agrees that the Lake County Board of Supervisors shall have the right to require the permit holder to participate in a Geysers area seismic monitoring program on a pro rata basis, if recommended by the Lake County General Plan.

11. Provision shall be made for adequate access by firefighting equipment to the site, and fire access maps shall be provided to the appropriate fire district(s) and Cal Fire.

12. All supplemental plans required by this permit, including but not limited to re-vegetation, sediment, drainage monitoring and control, scenic enhancement, water monitoring, traffic control and maintenance, noise abatement, emergency fire and medical evacuation and accidental spills, shall be incorporated into the use permit once approved by the responsible department or official.

13. Prior to operation a financial assurance agreement, certificate of deposit or bond, satisfactory in form and content to the Lake County Counsel, shall be provided and maintained by the permit holder to insure cleanup in case of spills, landslides, mishaps and site reclamation upon abandonment. The initial amount of said financial agreement shall be determined by the County of Lake, in consultation with the permit holder and a Registered Civil Engineer. The amount of the financial assurance shall be adjusted every two (2) years in accordance with the San Francisco Area Consumer Price Index, and shall be payable to the County of Lake and require County approval to terminate.

Date of Planning Commission Approval: January 13, 2011

Date of Board of Supervisors Amendment Approval: March 15, 2011

By: Dana Bowen
Richard J. Coel
Community Development Director

ACCEPTANCE

I have read and understood the foregoing use permit and agree to each and every term and condition thereof.

Date: 1/13/12

Bill Harms
Applicant or Authorized Agent

COUNTY OF LAKE

MINOR MODIFICATION OF USE PERMIT 09-01; MMU 12-04

Bottle Rock Power, LLC

On **August 6, 2012** the following modification not resulting in environmental impacts for the **Use Permit (UP 09-01) of Bottle Rock Power, LLC,** located at 6743, 6825, 7358, 7385 and 7500 High Valley Road to allow **an alternative location for hydrogen sulfide monitoring** is hereby approved by the Lake County Zoning Administrator subject to the original terms and conditions as amended herein:

Condition # H.11 of Use Permit 09-01 is hereby modified, and shall read as follows:

"BRP shall fund H_2S monitoring at the Fletcher residence, to be coordinated and/or managed by the LCAQMD. Frequency and timing of any such monitoring shall be as determined by the LCAQMD. If found to significantly contribute to an impact, BRP shall work with the LCAQMD and Community Development Department to mitigate the impact. ***Because the Fletchers have not agreed to allow the monitoring on their property, the monitoring shall be conducted at an alternative, nearby location, subject to review and concurrence of the Lake County Air Pollution Control Officer and the Community Development Director."***

All other conditions of Use Permit 09-01 shall remain as previously approved.

RICHARD COEL
COMMUNITY DEVELOPMENT DIRECTOR

By: Richard Coel

ACCEPTANCE

I have read and understand the foregoing Use Permit and agree to each and every term and condition thereof.

Date: 8/9/12

Applicant or Authorized Agent

EXHIBIT 106

79-AFC-4C
CALIF ENERGY COMMISSION

MAY 30 2001

RECEIVED IN DOCKETS

STATE OF CALIFORNIA
ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

In the Matter of:	)	Docket No. 79-AFC-4C
	)	Order No. 01-0530-07
Bottle Rock Geothermal Power Project	)	
	)	
Petition for the Transfer of Ownership from the California Department of Water Resources to Bottle Rock Power Corporation	)	**COMMISSION ORDER APPROVING OWNERSHIP TRANSFER**

INTRODUCTION

On April 6, 2001, the California Department of Water Resources (DWR) submitted a Petition to transfer ownership of the Bottle Rock Geothermal Power Plant from DWR to the Bottle Rock Power Corporation. Pursuant to Title 20, California Code of Regulations, Section 1769(b), the Commission's Executive Director, relying on a review of the application by Commission Staff and other governmental agencies, has recommended that the Commission approve the Petition for transfer of ownership on the condition that DWR remain responsible for ensuring the closure and decommissioning of the facility should such actions become necessary subsequent to the transfer of ownership.

SUMMARY OF HEARING

At a regularly scheduled business meeting on May 30, 2001, the Commission received the Executive Director's recommendation, as well as a copy of the "Purchase Agreement for the Bottle Rock Power Plant and Assignment of Geothermal Lease" and copies of all pertinent Memoranda and correspondence between Commission Staff, DWR and Bottle Rock Power Corporation and its representatives and comments from the parties.

BACKGROUND

The Commission certified the 55 MW DWR Bottle Rock Geothermal Power Plant in 1980 for the purpose of providing electricity for the State Water Project. The Commission's jurisdiction over the development of the Bottle Rock facility was primarily limited to the power plant site. Development of the underlying steamfields remains under the jurisdiction of Lake County pursuant to Lake County Amended Use Permit 85-27.

Operations at the Bottle Rock facility commenced in 1985. By 1990, DWR elected to close the facility due to a lack of steam. According to DWR, the Bottle Rock facility rarely attained 40 MW. The Commission approved an amendment to the conditions of certification that modified the monitoring and reporting requirements in consideration of the plant's shutdown status in April 1993 (Energy Commission Order #93-0426-02). The Commission approved an extension for the suspension of operations in October1997, allowing DWR an additional three years to prepare a facility closure plan [Energy Commission Order #97-1203-1(a)]. DWR has not filed a closure plan with the Commission to date.

In order for the Bottle Rock facility to be restarted, a petition to restart the plant and to amend the current suspended monitoring and reporting requirements must be filed in accordance with Title 20, California Code of Regulations, Section 1769(a). A petition to restart the facility would be evaluated for possible changes to the original conditions of certification and the possible need to impose new conditions to assure compliance with all current laws, ordinances, regulations, and standards.

Commission staff is concerned that, given the facility's poor performance history, the proposed acquisition by the Bottle Rock Power Corporation could be considered a highly speculative business transaction. Additionally, the Bottle Rock Power Corporation was only recently formed and its financial capability to fund decommissioning activities is uncertain. In light of these concerns and in the interest of ensuring the continued protection of public health and safety and the environment, staff requested, by way of correspondence dated April 26, 2001, DWR to provide the following:

1. A copy of the purchase agreement between DWR and Bottle Rock Power Corporation,
2. A copy of any appraisals by or for DWR providing an estimate of costs for decommissioning activities,
3. A brief summary of the salient points of the purchase agreement addressing any financial security associated with the potential decommissioning of the facility and environmental mitigation, and
4. A description of any continued responsibilities or obligations that will be retained by DWR subsequent to the proposed transfer of ownership.

DWR responded to Commission Staff's request for further information by way of correspondence dated May 2, 2001, attached to which was, among other things, a copy of the "Purchase Agreement for the Bottle Rock Power Plant and Assignment of Geothermal Lease" (the Purchase Agreement).

Section 2.4 of the Purchase Agreement requires Bottle Rock Power Corporation to provide DWR with a five million dollar ($5,000,000) surety bond to be delivered to DWR at the closing of the transaction. Bottle Rock Power Corporation is further required to submit an independent engineering estimate of the cost to decommission the facility and for all site restoration and remediation obligations for DWR's approval every third year after closing. That section further requires that, if such engineering estimate

exceeds $5,000,000, Bottle Rock Power Corporation shall increase the security to cover the amount of the estimated cost plus twenty-five percent (25%). The amount of the security may also be reduced to the estimated cost to decommission the facility and for site restoration and remediation, plus 25%, in the event the estimated cost is less than the initial $5,000,000 security amount. The security is to remain in place until five (5) years after completion of all decommissioning.

Section 2.4 of the Purchase Agreement further authorizes DWR to inspect the premises to determine whether substantial hazardous substance contamination on the property exists on the property from the operation of the facility or any related facilities. In the event DWR finds any such contamination, DWR may require Bottle Rock Power Corporation to cease any operations causing such contamination and to clean-up and remedy all such contamination.

Section 2.4 of the Purchase Agreement authorizes Bottle Rock Power Corporation to elect to substitute a letter of credit as the security required under that section in the same amount and on the same terms and conditions as those specified relative to the surety bond.

Section 2.5 of the Purchase Agreement requires that, at or prior to closing of the transaction, Bottle Rock Power Corporation shall have purchased an Environmental Impairment Insurance policy, with limits of liability in an amount not less than ten million dollars ($10,000,000), designating DWR as co-named insureds. The insurance policy must remain in effect at all times during operation and the decommissioning of the power plant, and extends to the associated steam fields.

Finally, in its May 2, 2001 correspondence in response to Commission Staff's request for further information relative to the transaction, DWR indicated that "(t)he Department will not have any continued responsibilities or obligations subsequent to the proposed transfer unless they are imposed by law and the Buyer fails to meet its obligation to take care of them".

COMMISSION FINDINGS

The Commission hereby finds that DWR's Petition for transfer of ownership satisfies the requirements of Title 20, California Code of Regulations, Section 1769(b). Bottle Rock Power Corporation will be responsible for complying with the Commission's conditions of certification and all subsequent Energy Commission Orders. Adequate measures appear to have been taken to enable DWR to ensure the proper closure and decommissioning of the Bottle Rock Power Plant subsequent to the transfer of ownership in the event Bottle Rock Power Corporation is unable to do so. And, Ronald E. Suess, President of the Bottle Rock Power Corporation, has filed the requisite statements verifying that Bottle Rock Power Corporation understands and agrees to comply with the conditions of certification.

ORDER

Having considered staff's recommendation and comments from the parties and all submitted documents, the Commission hereby approves the transfer of ownership of the Bottle Rock Power Plant from the California Department of Water Resources to Bottle Rock Power Corporation subject to the following condition:

(a) The parties shall strictly adhere to the terms of the "Purchase Agreement for the Bottle Rock Power Plant and Assignment of Geothermal Lease".

Dated: 5/30/01

State of California
Energy Resources Conservation
And Development Commission

William J. Keese

WILLIAM J. KEESE
Chairman

EXHIBIT 107

California Energy Commission Order Approving the Change of Ownership, the Restart of Operation after Suspension, and 11 Facility Design Changes, dated December 13, 2006 (CEC Order No. 06-1213-12).

Due to file size limitations, this Exhibit can be found online at:
http://www.energy.ca.gov/sitingcases/bottlerock/notices/2008-09-03_ORDER_APPROVING_CHANGE_OF_OWNERSHIP_TN_47894.PDF

CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512

STATE OF CALIFORNIA
ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

DOCKET
79-AFC-4C
DATE DEC 13 2006
RECD. SEP 03 2008

In the Matter of:	)	
	)	
BOTTLE ROCK GEOTHERMAL POWER PLANT	)	**Docket No. 79-AFC-4C**
	)	
	)	**Order No.** 06-1213-12
BOTTLE ROCK POWER CORPORATION	)	**ORDER APPROVING THE CHANGE OF OWNERSHIP, THE RESTART OF OPERATION AFTER SUSPENSION, AND 11 FACILITY DESIGN CHANGES**

The Bottle Rock Power Corporation, the owner of the Bottle Rock Geothermal Power Project, filed a petition on August 4, 2006 to change the ownership to Bottle Rock Power, LLC (BRP), amend the Decision to allow the restart of operation, and complete 11 design changes at the facility.

STAFF RECOMMENDATION

The Energy Commission staff reviewed the petition and finds that it complies with the requirements of Title 20, Section 1769(a) of the California Code of Regulations. Staff recommends approval of the Bottle Rock Power Corporation's petition to change the ownership from Bottle Rock Power Corporation, LLC to Bottle Rock Power, LLC (BRP), amend the Decision to allow the restart of operation, and complete 11 design changes at the facility. Staff also recommends that the Commission approve minor revisions to the Conditions of Certification in all technical areas for consistency with the Commission's current administrative format.

COMMISSION FINDINGS

As mandated by Title 20, section 1769(a)(3) of the California Code of Regulations, the Energy Commission may only approve project modifications if specific findings are met. Following staff's review of the proposed amendment, Energy Commission staff recommends approval based on the following findings:

A. There will be no new or additional unmitigated significant environmental impacts associated with the proposed changes.

B. Adherence to the proposed conditions and stipulations will ensure the facility's compliance with all applicable LORS.

C. The facility design changes will be beneficial to the project owner by allowing for more efficient operation.

D. There has been a substantial change in circumstances since the Commission certification justifying the changes in facility design not contemplated during the certification process.

SUMMARY OF CONCLUSION AND ORDER

Since the 1993 Energy Commission Order only suspended certain Conditions of Certification while the plant was not in operation, all suspended Conditions of Certification were first reactivated as part of the Staff Analysis. Staff then proposed deleting some of these reactivated Conditions of Certification that are no longer appropriate.

The following Conditions of Certification have been added: Public Health **2-10** (Legionella monitoring), Solid Waste Management **11-7** (enforcement action notice) and **11-8** (sludge testing); and Transmission Line Safety and Nuisance **13-8** (ISO notification).

The following Conditions of Certification have been deleted: Biological Resources **5-1.c** (erosion control), **5-1.d** (stream monitoring), **5-1.g** (cooling tower drift baseline), and **5-1.b** (complaint resolution); Soils **8-2** (sediment containment) and **8-3**(sediment removal); and Solid Waste Management **11-3** (CDHS permitted facility).

The following Conditions of Certification have been modified: Air Quality **1-2** (along with attached AQMD permit conditions to address changes in permit conditions), **1-3** (emission control system), **1-5** (H2S abatement), **1-6** (meteorological station), and **1-8** (ATCs/PTOs); Biology **5-1.a** (botanical mapping), **5-1.b** (BRMIMP), **5-1.e** (erosion control), **5-1.f** (erosion monitoring), **5-3.a** (boron drift), **5-3.b** (surface water sampling), **5-3.c** (groundwater sampling), **5-3.d** (nest boxes), **5-3.i**, (BRMMSR) and **5-3.j** (issue resolution); Public Health **2-2** (radon-222/3.0), **2-3** (radon-222/6.0), and **2-4** (baseline measurements); Water Resources **6-1** (surface water use), **6-4** (effluent discharge), and **6-5** (well volumes); Soils **8-1** (turbidity/sediment control) and **8-4** (decommissioning); Civil Engineering **9-3** (construction reports); Solid Waste Management **11-1** (DTSC I.D.), **11-2** (sulfur cake), and **11-5** (waste storage); and Safety **12-9** (Cal/DOSHA) and **12-10** (hazmat storage).

The following Conditions of Certification have received only administrative changes in reference to the project owner or agency contact: Air Quality **1-1**, **1-4**, and **1-7**; Public Health **2-1** and **2-5** through **2-9**; Socioeconomics/Aesthetics **3-1** and **3-2**; Cultural Resources **4-1** through **4-4**; Geotechnical/Seismic Hazards **7-1**, **7-2**, and **7-3**; Civil Engineering **9-1** **9-2**, **9-4**, and **9-5**; Structural Engineering **10-1** through **10-6**; Solid Waste Management **11-4** and **11-6**; Safety **12-1** through **12-7**; Transmission Line Safety and Nuisance **13-1** through **13-7**; and Noise **16-1**, **16-2** and **16-3**.

No changes were made to the following Conditions of Certification: Biology **5-3.b**; Cultural Resources **4-5**; Water Resources **6-2**, **6-3**, and **6-6**; and Safety **12-8**.

CONCLUSION AND ORDER

The California Energy Commission hereby adopts staff's recommendations and approves administrative revisions to the Decision, and the following changes to the Bottle Rock Geothermal Power Plant Decision. Except for "**Verification**" below, deleted text from the 1993 Order is shown in ~~strikethrough~~ and added text from the 1993 Order is underlined. Reactivated Conditions of Certification are shown in plain text. New deleted text is shown as ~~double strikethrough~~ and new added text is shown as double underline.

Air Quality

1-1 The ~~LCAPCD~~ LCAQMD shall perform all duties and functions normally conducted by the APCD District and shall have authority to issue a Permit to Operate, collect the permit fees, levy fines, order correction of operational or mechanical procedures or functions, and perform compliance tests. The established ~~LCAPCD~~ LCAQMD appeal procedures shall apply for all contested ~~LCAPCD~~ LCAQMD actions.

Verification: ~~DWR~~ The project owner shall summarize in an annual compliance report any interactions with the ~~LCAPCD~~ LCAQMD. ~~DWR~~ The project owner shall immediately inform the CEC CPM and ARB in writing of any formal appeals filed with the ~~LCAPCD~~ LCAQMD.

1-2 ~~DWR~~ The project owner shall comply with the requirements specified in the ~~Lake County Air Pollution Control District document entitled,~~ "Modified Determination of Compliance," dated February 22, 1982, with modifications in the LCAQMD Authority to Construct for the Bottle Rock Power Plant (Permit # 80-034A) as amended and with the conditions of the Authorities to Construct listed below ~~CEC Decision on DWR's Petition~~. The project owner shall comply with the LCAQMD requirements for initiating commercial operation upon commencing renewed commercial operation of the Bottle Rock Power Plant.

- A/C 2006-20 Mechanical Liquid Seal Ring Vacuum Pump Addition
- A/C 2006-21 Stretford Process Equipment Modifications
- A/C 2006-22 Sulfur Cake Process, Spare Vacuum Filter Addition
- A/C 2006-23 Mercury Scrubber Addition
- A/C 2006-24 Condensate H2S Abatement System Modifications
- A/C 2006-25 Automated Supervisory Control System Modifications
- A/C 2006-26 Steam Transmission Line Modifications

Verification: ~~DWR~~ The project owner shall annually request a letter from the ~~Lake County Air Pollution Control District~~ LCAQMD verifying the status of ~~DWR's~~ the project owner's compliance with the conditions of the ~~modified Determination of Compliance~~ each Authority to Construct and the modified Determination of Compliance. ~~DWR~~ The project owner shall provide the CEC CPM with a copy of this letter in the annual compliance report. In addition, ~~DWR~~ the project owner shall provide ~~the CEC~~

~~with~~ a copy of all quarterly reports and testing/monitoring summary reports submitted to the ~~LCAPCD~~ LCAQMD.

Reactivate the following conditions from the 1982 Modified Determination of Compliance with edits specified in the 2006 LCAQMD Authority to Construct 80-034A and 2006 LCAQMD Permitting Review for Bottle Rock Power Plant modernization, modification, and restarting of operation.

District Permit # A/C 80-034A, Modified Determination of Compliance

DOC-1 Hydrogen sulfide (H2S) emissions from the Bottle Rock Power Plant (BRPP) shall be limited to a maximum of five (5) pounds per hour during power plant generation and all possible generation outages. All untreated steam or condensate shall be returned to a treatment or re-injection point to ensure this level of emissions is maintained.

DOC-2 The atmospheric emissions control system (AECS) described in the AFC and revision to the AFC, April 18, 1980, shall be utilized. The system as described, which constitutes the best available control technology, shall consist of the following concurrently available major components:

a) A surface condenser to facilitate the partitioning of H2S into the non condensable gas phase;

b) A Stretford unit as specified in the AFC to reduce the H2S concentration in the non condensable gases to 10 parts per million by volume (ppmv) or less;

c) Secondary condensate treatment which includes sufficient hydrogen peroxide (H2O2) and catalyst injection and reaction time to ensure the power plant will comply with the emission limitation specified in Condition DOC-1;

d) A turbine by-pass system sufficiently sized to accept 100 percent of full steam flow during generating outages so that the power plant emission control system can be utilized to treat steam normally stacked during the outage. ~~In addition,~~

e) The air emissions control system specified above shall be properly winterized.

f) If a solids removal system is necessary as a result of solids formation in the condensate, such facility shall be incorporated into the system.

g) In the event of Bottle Rock generation loss, an alternate source of power to enable the continued use of the air emissions control system specified above shall be available.

h) A stand by generator capable of sustaining station power and the ~~MGR's~~ Emergency Stacking System shall be available and fueled with low sulfur fuel of 0.5 percent or less for use in case of concurrent transmission line and generator failure.

DOC-3 The major components of the air emissions control system, Stretford, Turbine by-pass, and condensate abatement shall incorporate a design to enable a 99 percent availability excluding scheduled maintenance on these individual major components. If such design criteria cannot be established, abatement systems shall be retrofitted as necessary to achieve performance at this level.

DOC-4 Upon failure of H2S abatement equipment, ~~DWR~~ the project owner shall curtail to a level necessary to comply with the five (5) lbs/hr H2S emissions limitation or provide for a mechanism allowing an immediate determination of prevailing atmospheric conditions to enable the LCAPCO to make a decision as to whether it is acceptable to continue operation at a higher emissions level.

DOC-5 The cooling tower shall have a guaranteed drift rate of no more than 0.00002 as described in the AFC.

DOC-6 .The off-gas vent to the atmosphere shall be used only during legitimate emergencies and to enable the cold start-up of the power plant turbine. Steam flows shall not exceed 25,000 lbs/hr to the power plant during direct venting of untreated non condensable gases in the steam. The turbine by-pass shall be used if possible to avoid direct venting into the atmosphere of undiluted non-condensables. The ~~LCAPCD~~ LCAQMD shall be notified when cold start-ups in excess of 5 lbs H2S/hr are to occur and may cancel such activity if deemed necessary.

DOC-7 ~~DWR~~ The project owner shall install alarms and switches on the following units to ensure immediate corrective action is initiated to prevent outages and potential stacking. Alarm/trip conditions noted with an asterisk have a separate alert and trip alarm function and those alarm/trip conditions without an asterisk are coincident alarm/trip functions:

Turbine Generator Unit -
1. ~~Executive~~ Excessive vibration switch, alarm and trip;
2. Lateral motion switch on the turbine shaft, alarm and trip;
3.* High lube oil temperature switch, alarm and trip;
4.* Low lube oil pressure switch with indicating light in control room;
5.* Low lube oil sump level switch, alarm;
6. Over-speed switch, alarm and trip;
7.* High hydrogen gas temperature and low purity hydrogen alarm and trip;
8.* Seal oil level switch and alarm;
9.* Differential pressure switch to prevent low differential pressure between the seal oil and hydrogen pressure, alarm and trip;

10.* Generator moisture detector and alarm;
11.* Vacuum switch to prevent low vacuum in the seal oil detaining tank, alarm and trip;
12.* Turbine bearing metal temperature alarm and trip.

Condensers -
1.* Pressure switch to prevent condenser pressures from exceeding design levels, alarm and trip;
2.* Condensate level switches to start and stop pump, prevent excessively high condensate levels in hot well;
3.* High or low condensate levels alarms.

Cooling Towers -
1.* Float switches and indicators to start and stop the pump in the cooling tower overflow basin and provide alarms;
2. Vibration switches and alarms on each cooling tower fan.

Electrical System -
1. Generator differential current trip and alarm;
2. Generator over-current trip and alarm;
3. Generator ground fault trip and alarm;
4. Generator anti-motoring trip and alarm;
5. Generator field ground trip and alarm;
6.* Generator stator over temperature alarm and trip;
7. Loss of excitation trip and alarm;
8. System negative phase sequence trip and alarm;
9. Transformer differential current trip and alarm;
10. Transformer over-current trip and alarm;
11. Transformer ground fault trip and alarm;
12. Transformer sudden pressure trip and alarm;
13.* Transformer winding temperature alarm;
14.* Transformer oil temperature alarm.

DOC-8 The ~~LCAPCD~~ LCAQMD shall be notified within one hour following any power plant outage or malfunction resulting in emissions in excess of five (5) pounds per hour H2S at ~~(707) 263-2391, 263-3121~~ (707) 263-7000, 263-3225, or a number to be provided by the ~~LCAPCD~~ LCAQMD. ~~DWR~~ The project owner shall maintain a log of power plant outages along with explanations for the outages and malfunctions. In the event that power plant outages recur because of equipment malfunctions that are not indicated by alarms, ~~DWR~~ the project owner shall retrofit alarms on the malfunctioning equipment as possible. The log shall be available for inspection upon the request of the staffs of the ~~LCAPCD~~ LCAQMD, ARB, CEC, and EPA.

DOC-9 The power plant abatement system shall have an operator on site at all times. The operator must be able to immediately take necessary corrective action in

the event of power plant outage or equipment malfunction in order to meet the conditions of this Determination of Compliance. ~~DWR~~ The project owner shall provide a telephone number at which the Bottle Rock operator or a representative can be reached to ensure ~~LCAPCD~~ LCAQMD entry for inspection purposes within one (1) hour of notification. If for considerations of safety, ~~DWR~~ the project owner cannot comply with such a specific request, ~~DWR~~ the project owner shall forward in writing within one week a letter explaining the reasons entry within one hour could not be allowed the ~~LCAPCD~~ LCAQMD staff.

DOC-10 ~~DWR~~ The project owner's approved-for-construction drawings or other drawings acceptable to the LCAPCO of the Stretford unit, turbine by-pass, and secondary abatement (condensate treatment) system shall be submitted to the ~~LCAPCD~~ LCAQMD and CEC for comment and review at the earliest possible date and in time for such drawings to be commented upon and modified if necessary. ~~DWR~~ The project owner shall not be required to submit proprietary information unless specifically requested by the LCAPCO pursuant to Section 91010, Title 17, California Administrative Code.

DOC-11 ~~DWR~~ The project owner shall submit to the ~~LCAPCD~~ LCAQMD, ARB, and CEC the results of the pilot test program performed by Bechtel National, Inc., no later than February 1, 1982, or within one month before the finishing of final design of the hydrogen peroxide/catalyst abatement system.

DOC-12 Although the applicant is to be licensed upon the use of BACT as described in Condition DOC-2, ~~DWR~~ the project owner may use other means to comply provided the ~~LCAPCD~~ LCAQMD, ARB and CEC are provided performance data indicating the other means are capable of achieving the same emissions limitations and reliability as those defined in Condition DOC-2. Any such changes shall be decided at a properly noticed public hearing to be convened jointly by the ~~LCAPCD~~ LCAQMD and CEC, no later than two years prior to anticipated power plant operation at which the ARB and all intervenors shall be invited to participate. The ~~LCAPCD~~ LCAQMD concurrence upon any changes must be given.

DOC-13 The access road from Bottle Rock Road to the power plant shall be paved to ensure that the generation of fugitive particulate matter is minimized.

DOC-14 Within sixty (60) days after initial power production, ~~DWR~~ the project owner shall demonstrate that the applicable emissions limitations are being maintained during normal power plant operations. ~~DWR~~ The project owner shall submit a detailed performance test plan to the ~~LCAPCD~~ LCAQMD at least thirty (30) days prior to such tests. Such plans shall also be designed to determine the particulate emissions rate and components of particulate emitted. ~~DWR~~ The project owner's proposed test plan must receive ~~LCAPCD~~ LCAQMD and CEC staff approval before such tests may be conducted to

determine compliance.

The ARB shall arbitrate difference if concurrence on a test procedure can not be reached between CEC, the project owner and the LCAQMD and recommend a binding procedure. Safe sampling access and ports to enable the ~~LCAPCD~~ LCAQMD to gather samples from the freshly treated condensate, cooling tower stack and treated gas from the Stretford system shall be provided.

DOC-15 Reports shall be issued quarterly to the ~~LCAPCD~~ LCAQMD detailing: a) hours of operation, b) any periods for which abatement equipment malfunctioned and the action taken; c) chemicals utilized for treatment of condensate; d) periods of scheduled and unscheduled outages and the reasons for such outages; and e) summary of the output of continuous emissions monitors with explanations of any irregularities.

DOC-16 Within ninety (90) days after commercial operation ~~DWR~~ the project owner shall file with the ~~LCAPCD~~ LCAQMD an application for a Permit to Operate together with all appropriate information to ensure compliance with the certification and submit permit fees.

DOC-17 ~~DWR~~ The project owner shall take all reasonable measures to comply with ~~a~~ any future air emittent or ambient standard or guideline adopted for present non criteria pollutants (i.e., mercury, boron, arsenic, radon-222, etc.) by responsible State or Federal agencies and/or comply with guidelines established as part of ~~DWR~~ the project owner's certification by the California Energy Commission.

DOC-18 ~~DWR~~ The project owner shall promptly fund reasonable studies or tests as required by the LCAPCO to ascertain the impact of ~~DWR Bottle Rock~~ BRPP when operating, specifically at the residence located approximately 1,900 ft east of the Francisco pad, should the resident in good faith file complaints with the LCAPCO indicating the air quality is worsening or becoming a nuisance or unhealthful as a result of Bottle Rock's operation. These studies shall include, but not be limited to, monitoring at the residence to determine H2S levels and particulate or other components which are believed or known to be in geothermal steam, tracer tests or source tests. Such studies shall be approved by the LCAPCO prior to initiation. Reasonable mitigation steps shall be applied upon request of the LCAPCO to attempt to remedy any unlawful impacts caused by the Bottle Rock power plant upon the residence.

DOC-19 The incoming steam to the power plant shall be analyzed quarterly and reported to the CEC and ~~LCAPCD~~ LCAQMD for radon-222 and its daughters, mercury, arsenic, silica, boron, benzene, ammonia, and total suspended solids for the first two years of operation. The results of these tests shall be reviewed by the LCAPCO to determine if thereafter annual testing

will suffice. ~~DWR~~ The project owner may join with the steam supplier in performing such tests. Results of any tests performed upon the cooling tower sludge shall also be forwarded to the ~~LCAPCD~~ LCAQMD.

DOC-20 H2S emissions shall be monitored continuously by measuring total volume flow rates and H2S concentrations at the following locations: a) incoming steam; b) outlet of the Stretford unit; and c) in the treated condensate. A log of such monitoring shall be maintained and be made available to ~~LCAPCD~~ LCAQMD staff upon request. The devices must have accuracies of +1 ppm, provide measurements at least every 15 minutes, and be accessible to ~~LCAPCD~~ LCAQMD staff. Flow rate measuring devices must have accuracies of +5 percent at 40 to 100 percent of the total flow rate and calibrations must be performed at least quarterly. Calibration records must be made available to ~~LCAPCD~~ LCAQMD staff upon request. Monitoring shall be required pursuant to Section 42303 of the California Health and Safety Code.

In the event that acceptable continuous monitors are not available, ~~DWR~~ The project owner shall conduct testing no less than once every thirty (30) days to ensure the efficiencies of the H2S abatement systems are being maintained. The testing procedure used to determine compliance must be approved by the LCAPCO. A log of such testing shall be maintained and be available to ~~LCAPCD~~ LCAQMD staff upon request. The ~~applicant~~ project owner shall on an annual basis after the date of the decision submit for approval by the ~~LCAPCD~~ LCAQMD, CEC and ARB a summary of the ~~applicant's~~ project owner's efforts to develop, research, let for contract to research, or let for contract to implement use of equipment, that is to be a likely candidate for a continuous condensate and non condensable gas monitor for hydrogen sulfide.

In either case, a summary of the monitoring and/or testing shall be forwarded to the ~~LCAPCD~~ LCAQMD every three (3) months.

DOC-21 ~~DWR~~ The project owner shall, at the request of the APCO, install, operate and maintain an on-site meteorological station capable of determining wind direction, wind speed, standard deviation of the direction, and temperature. Such data shall be furnished to the ~~LCAPCD~~ LCAQMD on a monthly basis in an hourly/day format and quarterly in a summary format acceptable to the APCO.

DOC-22 Compliance monitoring shall be conducted for a minimum one (1) year period before initial operation and one (1) year period after initial operation. Constituents to be monitored include arsenic, boron, mercury, radon-222, benzene, silica, and particulates in addition to H2S. Constituents shall be measured both as suspended aerosols and fall-out. Monthly composite samples of fall-out shall be collected using a wet/dry collector. Constituents other than H2S may be measured every sixth day, per the ARB particulate sampling schedule. ~~DWR~~ The project owner, CEC, and ~~LCAPCD~~ LCAQMD

shall agree upon methods used in sampling and analysis. At the end of the indicated period, the monitoring program will be reviewed by the APCO and the feasibility and necessity for continuance determined. The site for such monitoring shall be in the Cobb Valley area unless ~~DWR~~ the project owner and the ~~LCAPCD~~ LCAQMD agree upon a mutually acceptable alternative site.

If ~~DWR~~ the project owner enters into a combined effort with other developers or an alternative monitoring program acceptable to the ~~LCAPCD~~ LCAQMD and CEC, this condition shall not be exercised.

DOC-23 Added condition resulting from ~~modification~~ 1982 Modified Determination of Compliance.

A) Regarding secondary abatement:

~~LCAPCD~~ LCAQMD shall incorporate into the Bottle Rock Power Plant construction the ability to control the pH of treated condensate, provide for the oxidation of H2S utilizing H2O2, ensure a residence time of 75 or more seconds, and incorporate the ability to add on a catalyst injection capability to the secondary system should operating experience show such is necessary. Chemical storage capacity shall be as specified in the AFC amendments and no less than one weeks supply shall remain on-site at all times.

Alternatively, ~~DWR~~ the project owner can provide information acceptable to the ~~LCAPCD~~ LCAQMD and ARB establishing pH adjustment and control is not necessary at the Bottle Rock Power Plant or provide temporary facilities (portable) for the injection of NaOH during power plant start-ups until the question of pH control can be resolved.

Required Future Reports & Documents:

~~DWR~~ The project owner shall forward the Bechtel H2S Oxidation Study final report immediately upon its being finalized. And, no less than two months prior to initiating construction of the condensate abatement system, a detail design of the condensate abatement system shall be submitted formally in writing to the ~~LCAPCD~~ LCAQMD to enable ~~the LCAPCD to establish DWR's~~ compliance with ~~these~~ DOC requirements to be established by the ~~LCAPCD~~ LCAQMD.

B) Regarding the turbine by-pass to power plant main condenser system:

~~DWR~~ The project owner shall incorporate reliable and proven valves, noise attenuation of the valving, and desuperheating of by-passed steam/or account for in the design of the system, the ability to successfully by-pass 100 percent of the steam load.

Required Future Reports & Documents:

~~DWR~~ The project owner shall submit to the ~~LCAPCD~~ LCAQMD within 60 days ~~of CEC approval of the modified AECS~~, a report detailing at a minimum:

(1) The selection of the turbine by-pass valves, the operating experience with the selected valves, and the specific reason the valve design selected was chosen. To the extent possible, this report shall address the material presented in the Gibbs & Hill report on the subject.

(2) The design features incorporated and/or operating experience to ensure that the absence of desuperheating ability will not adversely affect the operation of the turbine by-pass or power plant emissions control system.

~~DWR~~ The project owner shall within sixty days prior to installation of the by-pass system provide detailed engineering drawings and a description in writing of the operation procedure for the turbine by-pass to power plant condenser system. The design shall incorporate the ability to by-pass during start-up and partial curtailment as well as total turbine failure.

~~DWR~~ The project owner, prior to operation of Bottle Rock shall with the steam supplier enter into an agreement detailing the responsibilities for operations of the turbine by-pass and emergency stacking abatement systems. Also, the interface between the stacking system controls shall be delineated by the steam supplier and ~~DWR~~ the project owner and approved by the ~~LCAPCD~~ LCAQMD. A copy of the agreement shall be filed with the ~~LCAPCD~~ LCAQMD no less than 60 days prior to initial power plant operation.

District Permit # A/C 2006-20, Mechanical Liquid Seal Ring Vacuum Pump Addition

AC20-1 This Authority to Construct is to modify the existing non-condensable gas removal system, air emissions control system (AECS), and to blind flange the auxiliary steam non-condensable gas vent; all other permits, associated conditions, and limitations are not modified. The permitted modification is described in the application for modification and evaluated in the analysis accompanying this permit issuance. Equipment utilized and/or modified which is significantly different than that described in the permit application is subject to permit application and review. A permit to operate application shall be made within one year of initial operation, and the subject permit shall be incorporated into the general permit for the power plant.

AC20-2 The gas ejectors shall remain operable and available for use in the event of failure of the mechanical vacuum pump.

AC20-3 All drain or discharge seal water shall be directed to the rich condensate collection and disposal system.

AC20-4 This permit does not modify or make less restrictive any emission limitation, reporting, and/or monitoring/testing requirements that presently exist for this facility.

AC20-5 The applicant shall provide the District, no less than 30 days subsequent to the installation and operation of the herein authorized modification, with as-built drawings for the modification, including Non-Condensable line(s) and AECS showing gas flow, and rich condensate collection and disposal method (reinjection or reflashing in the condenser).

AC20-6 The operator shall provide safe access for representatives of the District, ARB, or EPA to inspect, review records, or collect samples as approved by the APCO, from this facility. Should the plant be secured by locks or gates, the District shall be provided keys, combinations of other means to gain immediate access for purpose of testing or inspection.

District Permit # A/C 2006-21, Stretford Process Equipment Modifications

AC21-1 This Authority to Construct is for the addition of a 10 inch diameter skimming pipe on the Delay Tank between the existing 6 inch skimming lines, the addition of two (2) Oxidizer Tank air spargers operated by the air blowers, and all necessary piping and valves at the Bottle Rock Power Plant Stretford H2S Treatment system; all other permits, associated conditions, and limitations are not modified, except as explicitly approved. The permitted modification is described in the application for modification and evaluated in the analysis accompanying this permit issuance. Equipment utilized and/or modified which is significantly different than that described in the permit application is subject to permit application and review. A permit to operate application shall be made within one year of initial operation, and the subject permit shall be incorporated into the general permit for the power plant. The installation and operation of the modification shall not hinder the operation of the existing plant systems or inhibit emission limit compliance, as operated under A/C 80-034A.

AC21-2 The ability to return the H2S gas treatment components of the AECS operation to the pre-modification operation shall be retained. BRPC shall notify the District upon completion of tile modifications to arrange for an inspection.

AC21-3 Within ~~sixty (30)~~ days after the installation of the skimming lines and air sparging head are completed and operational, the permit holder shall submit a set of "as built" drawing(s) detailing the Stretford/Peabody H2S abatement system.

AC21-4 This permit does not modify or make less restrictive any emission limitation, reporting, and/or monitoring/testing requirements that that presently exist for this facility.

AC21-5 The operator shall provide safe access for representatives of the District, ARB, or EPA to inspect, review records, or collect samples as approved by the APCO, from this facility. Should the plant be secured by locks or gates, the District shall be provided keys, combinations or other means to gain immediate access for purpose of testing or inspection.

District Permit # A/C 2006-22, Sulfur Cake Process, Spare Vacuum Filter Addition

AC22-1 This Authority to Construct is for the addition of a second rotating vacuum drum (Bird Filter) for optional use, and removal of a sulfur melter; all other permits, associated conditions, and limitations are not modified herein. The permitted modification is described in the application for modification and evaluated in the analysis accompanying this permit issuance. Equipment utilized and/or modified which is significantly different than that described in the permit application is subject to permit application and review. A permit to operate application shall be made within one year of operation, and the permit to operate may be incorporated into the general permit for the power plant.

AC22-2 The applicant shall provide the District, no less than 30 days subsequent to installation of the herein authorized modification, with as-built drawings for the modification.

AC22-3 This permit does not modify or make less restrictive any emission limitation, reporting, and/or monitoring/testing requirements that presently exist for this facility.

AC22-4 The operator shall provide safe access for representatives of the District, ARB, or EPA to inspect, review records, or collect samples as approved by the APCO, from this facility. Should the plant be secured by locks or gates, the District shall be provided keys, combinations or other means to gain immediate access for purpose of testing or inspection.

District Permit # A/C 2006-23, Mercury Scrubber Addition

AC23-1 This Authority to Construct is for the installation of up to two mercury scrubber vessels and necessary modifications to the existing non-condensable H2S gas treatment system at the Bottle Rock Power Plant to be inserted downstream of the water knockout and upstream of the delay tank. The permitted modification is described in the application for modification and evaluated in the analysis accompanying this permit issuance. Equipment utilized and/or modified which is significantly different than that described in the permit application is subject to permit application and review. A permit to

operate application shall be made within one year of initial operation of installed components, and the subject permit shall be incorporated into the general permit for the power plant. If the second scrubber unit is not yet installed after one year, the A/C may be renewed.

AC23-2 BRPC shall install and maintain sampling ports on the influent and effluent sides for each mercury scrubber and measure and report measured efficiency of mercury scrubbing to the AQMD upon reaching 20 megawatts of generation, but no later than within the first year of initial operation. A log shall be maintained of unit maintenance to include dates of media changes and the reason for change out, any events of plugging, and all coincident mercury measurements made in sulfur product. The log shall be forwarded quarterly to the AQMD, or provided upon request.

AC23-3 All drain water discharged shall be directed to the rich condensate collection line.

AC23-4 Equipment shall be operated within supplier/manufacturers specifications. A local gauge indicating pressure drop across the unit shall be incorporated into the installation. Additionally, BRPC shall continuously monitor the scrubbers for pressure loss utilizing the DCS measurements prior to the delay tank and on the backside of the mechanical pumps, and incorporate alert and maintenance action warning levels prior to generation unit trip due to overpressure or back pressure of scrubbing media.

AC23-5 BRPC shall notify the District upon completion of installation of the mercury scrubber(s) to arrange for an inspection, and enable source testing to be performed.

AC23-6 This permit does not modify or make loss restrictive any emission limitation, reporting, and/or monitoring/testing requirements that presently exist for this facility.

AC23-7 BRPC shall provide the District, no less than 60 days subsequent to installation of the herein authorized modification, with as-built drawings for the modification, including sample port locations.

District Permit # A/C 2006-24, Condensate H2S Abatement System Modifications

AC24-1 This permit is for refinements to the existing condensate piping and valving servicing the Bottle Rock Geothermal Power Plant and permanent addition of the iron chelate chemical injection system; all other permits, associated conditions, and limitations are not modified herein. The permitted modification is described in the application for modification and evaluated in the analysis accompanying this permit issuance. Equipment utilized and/or modified which is significantly different than that described in the permit application is

subject to permit application and review. A permit to operate application, containing operating scenarios and contingency actions, shall be made within one year of initial operation, and the permit to operate may be incorporated into the general permit for the power plant. A performance plan consistent with rule 655 is recommended. The condensate reroute and iron chelate addition modifications shall be installed in a manner so as to minimize emissions from the facility by extending the contact time with oxygenated cooling tower basin waters to the maximum extent and consistent with documentation in the application and permit review issuance. Injection of iron chelated catalyst at the cooling tower basin or within the cooling tower circulating water shall be incorporated.

AC24-2 The permit holder shall properly install and maintain a properly sized, winterized condensate (cooling tower working water, condensate reroute valving and piping) H2S abatement system modification incorporating the availability of an iron chelate (Fe•HEDTA) catalyst, hydrogen peroxide, and other additives as approved by the APCO, to achieve an overall emissions rate specified in A/C 80-034A.

AC24-3 BRPC shall cause to be performed tests that establish compliance with permit emissions limitations under anticipated plant and AECS components operating scenarios, consistent with existing facility AQMD permits and the DOC. This shall include cooling tower stack source testing as described in Appendix 2 of the permit reviews and the DOC. Planned operating scenarios shall be described in writing, include required emission testing protocols, and be provided the APCO a minimum of two weeks prior to any operational tests or scheduled source testing. To the extent possible, operating scenarios shall identify measurable parameters that can indicate compliance, or the lack thereof to be correlated with cooling tower stack emissions testing.

A source test plan consistent with the facility permit requirements to determine H2S emissions, for any operating scenario of more than one week duration, shall be provided two weeks prior to testing the scenario. Source tests plans shall be approved by the AQMD prior to testing. Required cooling tower stack source testing can be delayed and H2O2 addition presumed unnecessary, unless requested by the APCO, provided all of the following are met: 1) AECS components are available, supplied and operable; 2) the cooling tower basin water has excess available dissolved oxygen and the hot well condensate is directed to the cooling tower basin; 3) incoming steam is 450 ppmw H2S or less; 4) the Fe•HEDTA concentration is 5 ppm or greater in the working water; and 5) delivered steam to tire plant does not exceed 150,000 lbs/hr.

AC24-4 The applicant shall provide the District, no less than 30 days subsequent to installation and operation of the herein authorized modification, with as-built drawings for the modification, detailing the condensate and cooling tower por-

tions of the facility associated with secondary H2S abatement. The submittal shall identify in detail the selected operational scenario, approved by the APCO (based on testing performed under Condition 3) to be utilized at the facility. This shall include flow routing of cooling tower working water, hot well condensate flow rate and routing, reinjection rate (H2S rich and normal), Fe•HEDTA and all chemical feed injection rate(s) and location(s), arid factors effecting contract times of dissolved H2S in aerated working waters or with H2O2.

AC24-5 Except as specified in Condition 2, this permit does not modify or make less restrictive any emission limitation, reporting, and/or monitoring/testing requirements that presently exist for this facility.

AC24-6 The operator shall provide safe access for representatives of the District, ARB, or EPA to inspect, review records, or collect samples as approved by the APCO, from this facility. Should the plant be secured by locks or gates, the District shall be provided keys, combinations or other means to gain immediate access for purpose of testing or inspection.

District Permit # A/C 2006-25, Automated Supervisory Control System Modification

AC25-1 This Authority to Construct is for the replacement of the existing control systems of the power plant and steam field with a unitized automated control and reporting system, "Distributed Control System" (DCS), including several levels of redundancies, backup processors, backup power for well head automated valves, and central controls for all power plant, steam field, and abatement system operations; all other permits, associated conditions, and limitations are not modified herein. The permitted modification is described in the application for modification and evaluated in the analysis accompanying this permit issuance. Equipment utilized and/or modified which is significantly different than that described in the permit application is subject to permit application and review. A permit to operate application shall be made within one year of operation, and the permit to operate may be incorporated into the general permit for the power plant.

AC25-2 Stretford Tail gas monitor output shall be recorded on a continuous paper strip chart recorder or an APCO approved equivalent device.

AC25-3 Condition 7 of the existing geothermal power plant authority to construct permit (A/C 80-034A) shall apply to the herein-permitted modification, and requirements contained therein for alerts, preventative maintenance, action, and reporting shall be incorporated into the DCS.

AC25-4 The applicant shall provide the District, no less than 30 days subsequent to reaching sustained plant production with the herein authorized modification,

with a description, detailing location and type of instruments, processors, actuated valves, identifying alerts, action levels and failure levels that would trigger failure of the AECS or the need to utilize the emergency steam stacking (ESS) system.

AC25-5 This permit does not modify or make less restrictive any emission limitation, reporting, and/or monitoring/testing requirements that presently exist for this facility.

AC25-6 The operator shall provide safe access for representatives of the District, ARB, or EPA to inspect, review records, or collect samples as approved by the APCO, from this facility. Should the plant be secured by locks or gates, the District shall be provided keys, combinations or other means to gain immediate access for purpose of testing or inspection.

District Permit # A/C 2006-26, Steam Transmission Line Modification

AC26-1 This Authority to Construct is to modify the existing geothermal fluid (steam) transmission pipeline, steam wash, and emergency steam stacking system servicing the Bottle Rock Power Plant; all other permits, associated conditions, and limitations are not modified. The permitted modification is described in the application and evaluated in the analysis accompanying this permit issuance. The pipeline shall be constructed and operated in a manner to not increase steam stacking during scheduled and unscheduled power generation or transmission line outages or during power plant startups and shutdowns of the unit. Equipment utilized and/or modified which is significantly different than that described in the permit application is subject to permit application and review. A permit to operate application shall be made within one year of initial operation, and the subject permit shall be incorporated into the general permit for the power plant.

AC26-2 Pipeline cleanout, testing and startup emissions shall be consistent with the submitted project application and minimized to the extent feasible. The operator shall provide the District 72 hours advance notice of scheduled cleanout and testing operations and obtain prior APCO approval for the date and time of emissions release or obtain a variance.

AC26-3 All drain water discharged shall be directed to the rich condensate collection and disposal line.

AC26-4 This permit does not modify or make less restrictive any emission limitation, reporting, and/or monitoring/testing requirements that presently exist for this facility.

AC26-5 The applicant shall provide the District, no less than 30 days subsequent to installation of the herein authorized modification, with as-built drawings for the modification, including all steam or gas vent locations.

AC26-6 The operator shall provide safe access to sampling ports that enable representatives of the LCAQMD, ARB, or EPA to collect samples, as approved by the APCO, from the steam stacking muffler, condensate collection basins, or any point release of steam, gas, or emissions to the ambient air.

1-3 ~~DWR~~ The project owner shall use atmospheric emissions control systems as specified by the ~~obtain written approval from both LCAPCD~~ LCAQMD Authority to Construct for the Bottle Rock Power Plant (Permit # 80-034A) and approved by the CEC CPM. The emissions control systems shall include a Stretford H2S abatement system, a secondary H2S treatment system utilizing iron chelate, and /or hydrogen peroxide, injected into hot condensate, and an emergency steam ~~before using any equipment other than the Hydrogen Peroxide Stretford/surface condenser system and~~ turbine bypass system for outages ~~as specified in the Modified Determination of Compliance (Conditions 2 and 12)~~.

Verification: ~~DWR~~ The project owner shall submit copies ~~file a copy~~ of the proposed permit application and written approval from the ~~LCAPCD~~ LCAQMD with the CEC CPM prior to beginning construction of any ~~alternative~~ H2S emission abatement system.

1-4 ~~DWR~~ The project owner shall submit approved-for-construction drawings of the power plant secondary H2S control system to the CEC CPM only if requested by the CEC CPM.

Verification: If requested, such drawings shall be submitted by ~~DWR~~ the project owner to the CEC CPM at least 30 days prior to commencing construction of the system.

1-5 Modified DOC Conditions DOC-14 and DOC-20 require submittal of a detailed test plan for testing the performance of the Bottle Rock plant H2S emissions abatement systems at normal full load operation. If continuous H2S monitors are available (determined by ~~LCAPCD~~ LCAQMD and ARB), ~~DWR~~ the project owner shall ensure that the detailed plan includes the following test parameters: (1) the test data shall reflect a minimum of 80 percent of the gross electricity generating capacity and (2), in the event that at least 30 days of qualifying data could not be obtained during the 90-day test period specified in the 1982 Modified DOC (DOC-14), ~~DWR~~ the project owner shall continue to collect test data until the required information has been obtained. The application for a Permit to Operate shall be filed as specified in 1982 Modified DOC Condition DOC-16 and need only include the results of the performance test conducted during the initial 90 days of commercial operation.

Verification: ~~DWR~~ The project owner shall provide the CEC CPM with a copy of the detailed plan submitted to the ~~LCAPCD~~ LCAQMD for review and approval and a copy of the plan as approved. In addition, if the test period extends beyond the initial 90 days

after commercial operation, ~~DWR~~ the project owner shall file a supplementary report with the CEC CPM and the ~~LCAPCD~~ LCAQMD which reflects all the results of the performance test.

1-6 ~~DWR~~ The project owner shall, if requested by the ~~Lake County Air Pollution Control District~~ LCAQMD, operate and maintain an on-site meteorological station capable of determining wind direction, wind speed, and temperature and provide resultant data to the LCAQMD.

Verification: ~~DWR~~ The project owner shall furnish proof of installation and maintenance of the meteorological station and submission of the data there from ~~such data~~ in a form acceptable to the ~~LCAPCD~~ LCAQMD. The submittals shall be noted in periodic compliance reports filed with the CEC CPM.

1-7 ~~DWR~~ The project owner shall participate in Geysers' Air Monitoring Program (GAMP) III for the life of the program.

Verification: ~~DWR~~ The project owner shall submit in the Annual Compliance Report a statement describing project owner's participation in GAMP.

1-8 ~~During the suspension period,~~ ~~DWR~~ The project owner shall maintain all existing Authorities to Construct (ATCs) and Permits to Operate (PTOs) required under Lake County Air Quality Management District (LCAQMD) regulations.

Verification: ~~DWR~~ The project owner shall submit in the Annual Compliance Report to the CEC CPM appropriate confirmation from the LCAQMD that all ATCs and PTOs are current and active under the terms and Conditions of LCAQMD Rules and Regulations.

~~DWR~~ The project owner shall also include in this report a statement identifying ~~regarding~~ any complaints and actions of resolution for air quality for the Bottle Rock facility.

~~For the duration of the suspension and any time when the plant is operating, project~~ ~~DWR~~ The project owner shall submit an Annual Compliance Report for each calendar year no later than February 15th, of the year following the reporting year.

Public Health

2-1. ~~DWR~~ The project owner shall conduct quarterly sampling and analysis for radon-222 concentrations in noncondensible gases entering the power plant. An outline of the current California Department of Health Services Radiologic health Section (CDHS/RHS) minimal requirements for monitoring and reporting on radon-222 follows:

- The facility must be sampled at least quarterly.

- The sampling and analysis methods must be shown to be accurate by comparison to known standards supplied by an acceptable source (e.g.,EPA). This "standard comparison" or "calibration" shall be run with each set of samples counted unless it is shown that the counting system is sufficiently stable. If calibration is unnecessary for each run, then calibration shall be required at least once per year.

- Each power production unit must be sampled such that the instantaneous radon-222 emission rate (Ci/sec) to the environment is accurately determined.

This radon-222 monitoring program will be conducted for at least the first three years of commercial operation. If monitoring results indicate that the radon-222 release for the Bottle Rock facility is well within applicable standards, the program may be modified, reduced in scope, or eliminated, provided the approval of CDHS/RHS is obtained by ~~DWR~~ the project owner. As new information and techniques become avail able, with concurrence of ~~DWR~~ the project owner and CDHS/RHS, changes may be made to the program or the methods employed in monitoring radon-222.

Verification: Approximately 10 percent of samples will be taken in duplicate, with the duplicate sample sent to the CDHS Sanitation and Radiation Laboratory in Berkeley for cross-check analysis as a quality control on ~~DWR's~~ the project owner's laboratory analyses.

~~DWR~~ The project owner will provide annual reports to CDHS/RHS discussing each point above. All results shall include the standard deviation associated with the counting error. Sources of error in the sampling procedure and emission calculation shall be discussed.

The report shall also indicate the maximum dose due to emissions calculated at the site boundary, and to the resident nearest the location of maximum radon-222 concentration, and the resultant expected population dose. (These dose calculations may follow a simplified methodology established by CDHS/RHS.)

Annual reports shall be maintained by CDHS/RHS and be available to the CEC and the public on request. CDHS/RHS shall report annually the results of the radon-222 monitoring program to the CEC. This report shall include, at a minimum, data concerning average and high values of radon-222 emissions and incidences of the 3.0 pCi/l and 6.0 pCi/l level exceedances (see 2-2. and 2-3. below).

If the program is modified, reduced in scope, or eliminated, ~~DWR~~ The project owner shall send a copy of CDHS/RHS approval to the CEC CPM.

2-2. If the radon-222 concentration exceeds 3.0 picocuries per liter (pCi/l) in the cooling tower exhaust, ~~DWR~~ the project owner must inform the CDHS/RHS and CEC ~~staff~~ CPM with a special report within 30 days of confirming an exceedance.

Verification: ~~DWR~~ The project owner shall provide a written report to CDHS/RHS and CEC ~~staff~~ CPM of sample results within 30 days of confirming an exceedance of 3.0

(pCi/l) radon-222 in the cooling tower exhaust. Confirmation includes the reanalysis of the sample by ~~DWR~~ the project owner or another qualified laboratory. Confirmation of sample results must be accomplished in the most expedient manner possible. The procedures used shall be the same as the normal analysis but may include sending samples to CDHS/RHS and/or outside qualified laboratories for analysis. The confirmation of a sample should take less than five calendar days. ~~DWR~~ The project owner shall notify the CEC of corrective actions taken.

2-3. If the radon-222 concentrations exceed 6.0 pCi/l in the cooling tower exhaust, ~~DWR~~ the project owner shall notify the CDHS/RHS and the CEC by email ~~telegram~~ or telephone within 24 hours of ~~upon~~ confirmation of the sample result.

Verification: ~~DWR~~ The project owner shall notify CDHS/RHS and the CEC within 24 hours of confirming the sample results. (See 2-2. above for confirmation requirements.) ~~DWR~~ The project owner shall notify the CEC of corrective actions taken.

2-4. ~~DWR~~ The project owner shall obtain baseline ambient air measurements for benzene, silica, mercury, arsenic, ammonia, and vanadium in accordance with the following requirements. These requirements may be accommodated as a part of any established regional data-gathering program acceptable to LCAPCO and CEC staff.

- Measurements shall be made in the populated areas in Cobb Valley downwind of the power plant, to be determined by LCAPCO, CEC staff, and ~~DWR~~ the project owner. Sampling will be performed for at least one year prior to commercial operation.

- Mercury will be measured in the particulate and vapor state.

- Benzene will be measured in the vapor state.

- Particulate measurements for silica, arsenic, mercury, and vanadium will be made using a sampler for inhalable particulates. Elemental analyses may be performed using particle induced X-ray emission (PIXE) techniques, atomic absorption or neutron activation techniques. Particulate samples will be collected every sixth day on the same schedule as the California Air Resources Board (CARB) statewide hi-vol particulate monitoring.

- Mercury vapor measurements will be made by trapping the vapor and subsequent laboratory analysis. The schedule for mercury vapor sampling may differ from the particulate sampling depending on the exact method used. Ammonia will be measured in the gaseous state concurrently with hydrogen sulfide. If a uniform ratio exists between ammonia and hydrogen sulfide, ambient hydrogen sulfide data can be used to estimate ammonia concentrations.

Ammonia measurements will be performed using a continuous N0-N02 analyzer retrofitted with a high temperature converter designed for ammonia determination.

Measurement methods other than those specified above may be proposed and used by ~~DWR~~ the project owner ~~as~~ pre-approved by the CEC staff.

Verification: A sampling plan consistent with the above sampling requirements will be prepared by ~~DWR~~ the project owner for approval by the CEC staff and LCAPCD, in consultation with the CARB, and CDHS, 120 days before monitoring begins. ~~DWR~~ The project owner shall provide the LCAPCD, CARB, and CEC with quarterly reports summarizing the monitoring results.

2-5. ~~DWR~~ The project owner and CEC staff, in consultation with CARB and CDHS, will agree upon significant levels of regulated and nonregulated pollutants applicable in the operational monitoring program. (Significant levels for regulated pollutants will be revised only if there is change in federal or state air quality standards.)

Verification: CEC staff shall prepare a report on the agreed upon levels for pollutants. This report will be filed with CEC CPM.

2-6. For the first two years of operation, ~~DWR~~ the project owner shall analyze the incoming steam to the power plant for mercury, arsenic, silica, boron, benzene, and ammonia. These components shall be monitored every quarter.

Verification: ~~DWR~~ The project owner shall submit the monitoring program plan to LCAPCD, CEC CPM, and CARB. LCAPCD shall review the plans for adequacy. ~~DWR~~ The project owner shall submit test results to the LCAPCD and the CEC on a quarterly basis. After two years, the LCAPCD shall determine if annual testing for the above-mentioned steam constituents is sufficient. ~~DWR~~ The project owner may join with the steam supplier in performing such tests.

2-7. In the second year of commercial operation, ~~DWR~~ the project owner shall perform a mass balance measurement for mercury and arsenic.

Verification: ~~DWR~~ The project owner will prepare a report on the mass balance measurements and calculations. ~~DWR~~ The project owner shall send the report to the CDHS and CEC CPM within 30 days after completing the measurements. The program results will be evaluated by CEC CPM and CDHS to determine requirements, if any, for continuation of a mass balance measurement program.

2-8. New well steam analysis will be performed by ~~DWR~~ the project owner when new steam supply wells are added to guarantee that combined power plant emission (the sum of base line, power plant contributions and new well contributions) do not change significantly (+20 percent). Methodology for this analysis will be the same as in 2-6. above.

Verification: ~~DWR~~ The project owner shall send the new well steam analysis to the CEC within 30 days after the sampling.

2-9. ~~DWR~~ The project owner shall conduct ambient air monitoring for arsenic, boron, mercury, benzene, and silica for one year after initial operation, as outlined in LCAPCD's Determination of Compliance, Condition 22. At the end of the indicated period, LCAPCD will review the monitoring program and determine the feasibility and necessity for continuing the program. If ~~DWR~~ the project owner enters into a combined monitoring program with other developers that is acceptable to the LCAPCD and CEC, this requirement would be satisfied.

Verification: ~~DWR~~ The project owner shall submit the monitoring plan to LCAPCO, CEC, and CARB for approval at least six months prior to start-up of the program. ~~DWR~~ The project owner shall provide the LCAPCO, CARB, and CEC CPM with quarterly reports summarizing the monitoring results.

2-10 The project owner shall develop and implement a Cooling Water Management Plan to ensure that the potential for bacterial growth in cooling water is kept to a minimum. The Plan shall be consistent with either staff's "Cooling Water Management Program Guidelines" or with the Cooling Technology Institute's "Best Practices for Control of Legionella" guidelines but in either case, the Plan must include sampling and testing for the presence of Legionella bacteria at least every six months. After two years of power plant operations, the project owner may ask the CEC CPM to re-evaluate and revise the Legionella bacteria testing requirement.

Verification: At least 60 days prior to the restart of cooling tower operations, the Cooling Water Management Plan shall be provided to the CEC CPM for review and approval.

Socioeconomic/Aesthetics

3-1 ~~DWR~~ The project owner shall prepare a detailed visual impacts mitigation plan. The plan will discuss the specific steps to be undertaken in order to carry out the mitigation measures identified in the Draft EIR (page 142). This plan may be submitted as a part of the biological resource mitigation plan. If this is done, the joint plan must be identified as such and must specify how the measures are intended to mitigate the visual disturbances of the project. In addition to onsite impacts, the visual impacts mitigation plan shall include measures for the visual disturbances associated with the access roads and transmission lines.

Verification: ~~DWR~~ the project owner shall submit the visual impacts mitigation plan to the CEC CPM by January 16, 1981 for review and approval. The CEC staff, in consultation with the Lake County Planning Department, shall review the plan.

3-2. ~~DWR~~ The project owner shall not begin construction activities without CEC approval of the visual impacts mitigation plan. ~~DWR~~ The project owner shall implement the mitigation measures identified in the approved plan. ~~DWR~~ The project owner shall also

implement any subsequent mitigation measures which may be approved by the CEC CPM in the event that measures included in the approved visual impacts mitigation plan are not sufficient to alleviate the visual disturbances.

Verification: ~~DWR~~ The project owner shall submit an annual report to the CEC CPM demonstrating compliance with the applicable requirements of the visual impacts mitigation plan, including any subsequent amendments.

Cultural Resources

4-1. ~~DWR~~ The project owner shall develop and implement a systematic archaeological recovery program for site CA-LAK-610 in consultation with CEC staff prior to any construction activity. The program shall include the development of an archaeological research design, site mapping, and a site transect for sampling. The program shall also provide for the analysis and curation of recovered artifacts.

Verification: ~~DWR~~ The project owner shall provide the CEC CPM with a copy of the archaeological recovery program plan.

4-2. ~~DWR~~ The project owner shall arrange for the presence of a qualified archaeologist to advise ~~DWR's~~ The project owner ~~Construction Department~~ of the significance of any cultural resource which may be discovered during the stripping of vegetation and top soil from the plant site and related facilities.

The archaeologist shall conform to on-site safety procedures, as directed by the project owner ~~Resident Engineer~~.

Verification: The presence of the archaeologist shall be noted in the monthly Construction Progress Report provided the CEC CPM.

4-3. If previously unidentified cultural resource sites are discovered or unearthed during construction, work in the immediate area will be halted until the archaeologist evaluates the significance of the resource. If the resource is determined to be significant, ~~DWR~~ the project owner shall promptly notify the CEC CPM of the resource discovery and work stoppage. Representatives of ~~DWR~~ the project owner, the CEC CPM, and the Anthropology Lab at Sonoma State University shall meet with ~~DWR's~~ the project owner's archaeologist within one working day of the notification to discuss the possible mitigation measures. Pending resolution of this matter, construction activity in the resource area shall remain stopped.

Verification: ~~DWR~~ The project owner shall notify the CEC CPM within one working day of the resource discovery and the work stoppage.

4-4. ~~DWR~~ The project owner shall ensure that construction personnel are instructed to avoid all contact with flagged or fenced sites and to avoid disturbance of any other historic or archaeological material.

Verification: Prior to the start of construction activities, ~~DWR~~ the project owner shall provide the CEC CPM with a statement verifying compliance.

4-5. ~~DWR~~ Project owner shall ensure that the existing fence on the north side of site CA-LAK-609 is maintained.

Verification: A statement verifying compliance shall be provided in each Annual Compliance Report filed with the CEC CPM.

Biological Resources

5-1.a. ~~DWR~~ The-project owner ~~will~~ shall have a qualified botanist identify, map, and field mark populations of Napa lomatium (*Lomatium repostum*) and Brandegee's eriastrum (*Eriastrum brandegeeae*) in the vicinity of the power plant, transmission lines, and access roads prior to new ground disturbing activities related to power plant and ancillary facility operation and maintenance. ~~Construction crews~~ Power plant employees, as well as other individuals conducting business on behalf of the project owner, where the work performed is in close proximity to any marked populations, ~~will~~ shall be alerted to avoid those ~~marked~~ populations. No disturbance shall occur to these populations.

Verification: The project owner shall include the results of field marking activities as well as what was done to alert appropriate individuals involved with the project and incorporate this into the BRMMSR. (See 5-3.i. below)

5-1.b. ~~DWR~~ The project owner ~~will~~ shall prepare a revised detailed B~~b~~iological R~~r~~esources M~~m~~itigation Implementation and Monitoring P~~p~~lan (BRMIMP) which includes mitigation measures with their implementing methodologies, ~~a field implementation plan~~ and submit it to the CEC ~~staff~~ CPM for review and approval in consultation with the California Department of Fish and Game (CDFG). ~~This plan will include the mitigation measures set forth in the AFC (pages V-108 to V-115), excluding brush piles, (V-102) and in the NOI (pages V-16 and 17 and V11-14 and 15). DWR~~ The project owner ~~will~~ shall implement the approved biological resources mitigation and monitoring measures specified in the approved BRMIMP.

Verification: The project owner shall submit the plan to the CEC CPM for review and approval 45 calendar days before the start of electrical power production.

~~5-1.c. The DWR will have erosion controls for all distrubed areas in place prior to the first rain season following construction activities.~~

~~5-1.d. DWR will monitor streams (four locations, see AFC, page V-97) establishing baseline data prior to construction activities. (This requirement will be satisfied if the cooperative Geysers KGRA aquatic study has commenced by this time.)~~

5-1.e. ~~DWR will~~ The project owner shall ~~submit~~ develop procedural guidelines describing erosion control measures for earthmoving activities that could take place during operation and maintenance ~~which are proposed~~ for the months of November, December, January, February, and March. The CEC CPM ~~staff~~ will review the plan for adequacy and provide a determination of acceptability within ~~15~~ 21 calendar days of receipt. The plan must be approved prior to allowing earthmoving activities during these months. If earthmoving activities are planned from ~~November to~~ April to November, ~~temporary measures will~~ best management practices acceptable to the CEC CPM for this normally drier period shall be described ~~implemented to control erosion as set forth~~ in the procedural guidelines specified above and incorporated into the BRMIMP ~~AFC (page V-101-101 to V-104)~~. (See 5-1.b. above)

Verification: The project owner shall incorporate the procedural guidelines describing the erosion control measures into the BRMIMP after approval by the CEC CPM.

5-1.f. Annually, in April, ~~DWR will~~ the project owner shall inspect, ~~cut and fill slopes and other~~ all previously disturbed areas for ~~impacts from gully erosion and will~~ soil erosion impacts and shall take corrective action ~~whenever~~ wherever necessary and report to the CEC CPM on this until permanent vegetation and/or successful soil stabilization, as determined by the CEC CPM, is established. At the time soil stabilization has been judged successful by the project owner, the CEC CPM may be contacted to consider terminating or appropriately modifying aspects of this mitigation and monitoring requirement. ~~permanent vegetation is established, DWR will contact CEC staff to consider termination of this aspect of the monitoring program.~~

Verification: The project owner shall submit to the CEC CPM in the BRMMSR the results of the monitoring and an explanation that verifies compliance with this condition. (See 5-3.i. below)

~~5-1.g. DWR will conduct visual observations and infrared aerial photography prior to power plant operation in order to establish a baseline against which cooling tower drift impacts will be evaluated. Following power plant operation, DWR will monitor the potential drift impact area. Monitoring is required for at least the first three years of plant operation at which time DWR, CDFG, and CEC staff will meet to determine if further monitoring is necessary. If significant damage or changes are observed, DWR, CDFG, and CEC staff will decide on further studies and/or necessary mitigation measures.~~

~~5-1.h. If the CEC staff receives any submittals, complaints, or other information from DWR, other agencies or the public that indicates one or more significant impacts are occurring on the leasehold, the Applicant and CEC staff will meet to determine what further measures shall be taken to correct or reverse these impacts.~~

~~**Verification:** DWR will prepare annual compliance statements, verifying compliance with the biological resource mitigation measures and implementation schedule. These statements will be submitted to CEC staff.~~

~~Upon reasonable notice, provide access to CEC staff and CDFG staff will be allowed to make on-site inspections.~~

~~With respect to the overall implementation, if any specific mitigation measure or monitoring program is not implemented, is done incorrectly, or is determined to be ineffective, DWR, in consultation with CEC and CDFG, will take action to correct the problem. If the problem cannot be resolved by staff, the compliance monitoring dispute resolution process will be utilized.~~

5-2. One year prior to power plant deactivation, ~~DWR~~ the project owner ~~will~~ shall include in the decommissioning plan a biological resources element identifying mitigation ~~and compensation~~ measures.

Verification: ~~DWR~~ The project owner ~~will~~ shall submit the biological resources element of the decommissioning plan to the CEC CPM ~~and the CDFG~~ for a determination in consultation with CDFG of adequacy and acceptability.

5-3.a. If, based on quarterly visual inspections by a qualified individual(s) provided by the project owner, or information provided by other sources indicating that project related drift or emissions may be affecting vegetation in the vicinity of the project, ~~T~~ the project owner ~~DWR~~ shall resume ~~continue~~ annual soil/duff monitoring and leaf tissue analysis to determine boron levels, ~~until the DWR and CEC determine that no further contamination or cumulative impacts remain.~~ The monitoring protocol employed shall be approved by the CEC CPM.

Verification: The ~~DWR shall~~ project owner shall ~~submit to the CEC CPM by December 15, 1993 and each subsequent year, an annual monitoring report which contains~~ include the results and a discussion of the year's required monitoring in the BRMMSR, ~~and verifies compliance with the condition.~~ (See 5-3.i. below)

5-3.b. The ~~DWR~~ project owner ~~will~~ shall continue surface water sampling at the following 5 sites: Kelsey Creek immediately upstream of the 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; and Kelsey Creek near Kelseyville.

Sampling shall be conducted ~~four twice times a year,~~ in ~~January,~~ April, July, and October of each year.

Protocol: Each surface water sample shall be analyzed for boron, sodium, sulfate, calcium-magnesium hardness, Ph, alkalinity, settleable solids, non-filterable residue, turbidity, ~~and~~ specific electrical conductivity, magnesium, calcium, copper, iron, lead, manganese, and zinc.

~~Additionally,~~ As determined necessary by the CEC CPM, based on water quality sampling results and consultation with the CDFG, the ~~DWR will~~ project owner shall, during April, July and October, collect and identify bottom-dwelling organisms from at least one square meter of stream-bed at each site and make special trace metal determinations for copper, iron, manganese, lead and zinc.

Verification: The ~~DWR~~ project owner shall ~~submit to the CEC CPM by December 15, 1993 and each subsequent year, an annual monitoring report which contains~~ include the results and a discussion of the year's monitoring in the BRMMSR ~~and verifies compliance with the condition~~. (See 5-3.i. below)

5-3.c. The ~~DWR~~ project owner shall continue groundwater sampling at the following five sites: Nance Spring, Union Oil Spring, Coleman Well, Jadiker Spring and Francisco Well.

Sampling shall be conducted ~~four twice times a year,~~ in ~~January,~~ April, July, and October of each year.

Protocol: Each groundwater sample shall be analyzed for boron, sodium, sulfate, calcium-magnesium hardness, pH, alkalinity, non-filterable residue, specific electrical conductivity, copper, iron, manganese, lead and zinc.

Verification: The ~~DWR~~ project owner shall ~~submit to the CEC CPM by December 15, 1993 and each subsequent year, an annual monitoring report which contains~~ include the results and a discussion of the year's monitoring in the BRMMSR ~~and verifies compliance with the condition~~. (See 5-3.i. below)

5-3.d. The ~~DWR~~ project owner shall replace and maintain the nest boxes as originally prescribed, and maintain wildlife water basins in working condition. Wildlife use of these habitat improvement projects ~~will~~ shall be monitored ~~annually~~ biennially using the same methodology that has been used in the past and thoroughly described in the BRMMSP. (See 5-3.i. below)

Verification: The ~~DWR~~ project owner shall ~~submit to the CEC CPM by December 15, 1993 and each subsequent year, an annual monitoring report which contains~~ include the results and a discussion of the ~~year's~~ biennial monitoring in the BRMMSR ~~and verifies compliance with the condition~~. (See 5-3.i. below)

~~**5-3.e.** Deer pellet group counts shall be sampled by the DWR every 6 months, using the same methodology as in past sampling. (See 5-3.i. below)~~

~~**Verification:** The DWR shall submit to the CEC CPM by December 15, 1993, and each subsequent year, a report which contains the results and a discussion of the monitoring and verifies compliance with the condition.~~

~~5-3.f. Vegetation (quantity and species composition) monitoring shall be continued by the DWR on the two 25 acre study plots twice in the next ten years.~~

~~Protocol: Once during the first five year interval and once during the second five year interval. The same methodology will be used as in the past for monitoring of these plots. (See 5-3.i. below)~~

~~**Verification:** The DWR shall submit a report to the CEC CPM by December 15th of the year of the monitoring action, which contains the results and a discussion of the monitoring and verifies compliance with the condition.~~

~~5-3.g. Bird monitoring in the black oak and chaparral study areas shall be conducted three times in the next 10 years by the DWR. This monitoring will use the same methodology (See 5-3.i. below) as past monitoring of these study areas. Monitoring will be spread over the ten year period.~~

Verification: The DWR shall submit to the CEC CPM by December 15th of the year of the monitoring action, a report which contains the results and a discussion of the monitoring and verifies compliance with the condition.

5-3.h. ~~DWR~~ The project owner shall monitor erosion on an on-going basis during the rainy season. Inspections shall include all cut and fill slopes and other disturbed areas. Erosion problems shall be immediately repaired.

If temporary repairs are necessary during the rainy season, ~~DWR~~ the project owner shall complete permanent repairs to those erosion problems by October 10th of each year.

Verification: The ~~DWR~~ project owner shall submit to the CEC CPM by August 15th of each year an annual report which includes results of erosion monitoring when erosion problems are discovered. This report will describe the problems discussed and action taken to correct the problems.

During years when no erosion problems occur, and no corrective action is required, a brief discussion may be included and submitted in the December 15th annual report. (See 5-3.i. below)

5-3.i. A Biological Resources Mitigation and Monitoring ~~and Mitigation~~ Status Report (BRMMSR) shall be prepared to provide the results of the previous year's monitoring. This report ~~will~~ shall be submitted by December 15th each year. The ~~1993~~ report will collate and summarize all monitoring results including methodologies used to satisfy conditions 5-3.a.~~b.~~ through 5-3.h~~d~~. The project owner shall include in

the BRMMSR appropriate maps of suitable scale with a detailed discussion of the current status of all mitigation and monitoring actions.

Verification: The ~~DWR~~ project owner shall submit to the CEC CPM by December 15th, ~~1993, and~~ of each ~~subsequent~~ year, an annual BRMMSR which verifies compliance with the Biological Resource Conditions of Certification.

Upon reasonable notice the CEC CPM, Lake County staff, the Regional Water Quality Control Board staff, and the California Department of Fish and Game (CDFG) staff, shall be granted access for inspections.

5-3.j. If any specific mitigation measure or monitoring program is determined to be ineffective, or if the CEC CPM ~~staff~~ receives any submittal, complaints, or other information from the ~~DWR~~ project owner, other agencies, or the public, that indicates one or more significant impacts are occurring on the leasehold subject to CEC jurisdiction, ~~DWR~~ the project owner shall undertake actions ~~and the CEC~~ staff ~~CPM shall meet to determine what further measures shall be taken~~ to correct or reverse these impacts with advice and consent from the CEC CPM.

Verification: The ~~DWR~~ project owner in consultation with CEC CPM will take action to correct the problem. If the problem cannot be resolved ~~by staff~~, the compliance monitoring dispute resolution process will be utilized.

~~5-4. Monitoring of wildlife use of the revegetated cut and fill slopes shall be initiated and conducted by the DWR three times, spread throughout the next 10 years. This effort will include: birds; deer; reptiles; small mammals; and rabbits/hares. DWR shall develop a methodology and a proposed schedule for these monitoring studies.~~

~~**Verification:** DWR shall submit the methodology and a proposed schedule for these monitoring studies to the CEC CPM for acceptability, 60 days prior to the start of monitoring during the first monitoring year.~~

~~The CEC CPM will respond as to the acceptability of the methodology and the monitoring schedule within 30 days of receipt of the submittal.~~

~~Filing of the subsequent three reports and all status reports will be included in the December 15 annual BRMMR (5-3.i.).~~

Water Quality/Water Resources

6-1. ~~DWR~~ Project owner shall, during any ~~the~~ period of suspension, utilize no new surface water as the source for any maintenance or other necessary activity without first notifying and obtaining the required authorization from the appropriate federal, state, county or local agencies.

Verification: 90 days prior to proposed use of surface water, ~~DWR~~ the project owner shall file statements with the CEC CPM, the Water Resources Control Board, the Central Valley Regional Water Quality Control Board (CVRWQCB), and all other agencies having regulating jurisdiction over such water use, identifying the source(s), estimated amounts of use, and the method of obtaining such water.

Additionally, ~~DWR~~ the project owner shall provide the CEC CPM copies of all agency responses and permits necessary for surface water use requests.

6-2. ~~DWR~~ Project owner shall maintain on file the Spill Contingency and Containment Plan (SCCP) originally required by the CVRWQCB.

Verification: ~~DWR~~ Project owner shall notify the CEC CPM of the file location of the SCCP. ~~DWR~~ Project owner shall comply with all applicable monitoring conditions described in CVRWQCB's Waste Discharge Requirement Order No. 76-202 and any amendments thereto.

6-3. ~~DWR~~ Project owner shall adequately maintain the previously constructed impermeable spill collection-containment system to preclude discharges of toxic-hazardous waste and materials from the power plant pad.

Verification: ~~DWR~~ Project owner shall submit annually to the CVRWQCB and to the CEC CPM, via the Annual Compliance Report, a record of maintenance and corrective measures to the spill containment system.

6-4. ~~DWR~~ Project owner shall, during any ~~the~~ period of suspension, maintain and operate the domestic waste water septic tank, holding tank, pumps and control system as originally designed to discharge the limited amounts of effluent into the steam suppliers condensate reinjection system.

Verification: ~~DWR~~ Project owner shall submit annually to the CVRWQCB and to the CEC CPM via the Annual Compliance Report, a record of maintenance and operation of the domestic waste water disposal system.

6-5. ~~DWR~~ Project owner shall maintain quarterly records of the volume of water pumped from the on-site supply well.

Verification: ~~DWR~~ Project owner shall include in the annual compliance report ~~maintain on site for the CEC CPM to review upon request,~~ supply records of water pumpage from the on-site water well.

6-6. To minimize the effects of contaminated storm water runoff discharges from the paved plant site areas to surface waters, ~~DWR~~ project owner shall discharge all such waters to the condensate reinjection well(s), limited only by the capacity of the existing sump pumps or the capacity of the reinjection well(s) to accept such discharges.

Note: During high rainfall periods when the runoff from the paved plant area is discharging to the High Valley Creek watershed, the impacts of such discharges will be minimized due to the diluting effects of runoff from the remainder of the watershed.

Verification: ~~DWR~~ Project owner shall submit annually to the CEC CPM a record of maintenance and operation of the drainage sump pump discharge to the injection well(s).

Geotechnical/Seismic Hazards

7-1. ~~DWR~~ The project owner will assign to the project one or more qualified geotechnical engineers to monitor compliance with design intent in geotechnical matters, to provide consultation during design and construction of the project, to make professional geotechnical judgments concerning actual site conditions and to recommend field changes to the responsible civil engineer. The responsibilities of the geotechnical engineer will include:

- Review of earthwork quality control tests (including compaction tests);
- Reporting to the responsible civil engineer any geologic conditions which differ from those predicted on the basis of the engineering, geology, and soils engineering reports and any site earthwork which does not comply with the approved grading plans and change orders;
- Preparation, in accordance with UBC 7015, of a Soils Grading report with his approval that the site is adequate for the intended use; and
- Other duties (such as monitoring on-site or near-site ground-water levels) as appropriate.

Verification: ~~DWR~~ The project owner shall notify the CEC CPM prior to beginning construction of the geotechnical engineer's name and registration number.

7-2. ~~DWR~~ The project owner will assign to the project a qualified certified engineering geologist who will be present as needed during all phases of site excavation and grading

to evaluate site geologic conditions and geologic safety. Responsibilities of the engineering geologist will include:

- Collection during site excavation and trading of information relative to site geology and geologic safety, including inspection and monitoring of drill logs and drill cores;

- Preparation of a detailed permanent geologic map or log of all final excavated surfaces (including walls and floors of the foundations of the turbine generator building, cooling tower, and other permanent structures);

- Reporting to the responsible civil or geotechnical engineer any geologic conditions which differ from those predicted in the Engineering Geology Report; and

- Preparation, in accordance with requirements of UBC Section 7015, of a Geologic Grading Report, with approval that the site is adequate for the intended use as affected by geologic conditions.

Verification: ~~DWR~~ The project owner shall notify the CEC CPM prior to beginning construction of the certified engineering geologist's name and certification number

7-3. Should adverse site conditions warranting substantial changes in facility design or other mitigation measures be discovered during site excavation and grading, ~~DWR's~~ the project owner's evaluation of these conditions shall be signed and stamped by a certified engineering geologist, and any plans setting forth the substantial changes (change orders) shall be signed and stamped by the responsible registered civil engineer, who shall also verify that the change orders conform with the terms and conditions of the certificate. ~~DWR~~ The project owner shall not proceed with any earthwork in the affected area (except that necessary to protect persons, property, and the environment) based on proposed change orders until the change orders are accepted by CEC staff.

As soon as possible after ~~DWR~~ the project owner confirms the presence of any adverse site conditions which may require substantial changes, ~~DWR's~~ the project owner's civil engineer or geotechnical engineer shall notify the CEC CPM and shall submit to the CEC CPM the new geotechnical information upon which the necessary change orders will be based.

As soon as possible after ~~DWR~~ the project owner has developed change orders for such hazardous or adverse geologic conditions, ~~DWR~~ the project owner will submit two copies of such change orders to the CEC CPM for determination of their acceptability.

Discovery of adverse site conditions which will warrant only minor changes in facility design or other mitigation measures need not be reported by ~~DWR~~ the project owner to the CEC CPM. Such new geotechnical information will be reflected in the as-graded and

as-built plans. ~~DWR~~ The project owner will maintain the as-built and as-graded plan files for the life of the project. CEC staff will have access to these files.

"Substantial changes are those changes requiring an alteration in design concept and preparation of new design calculations.

Verification: CEC staff will review the proposed change orders and the geotechnical information on which they are based to determine that they conform with the terms and conditions of the certificate. Unless ~~DWR~~ the project owner is notified otherwise within 30 days of receipt by CEC CPM of any change order, ~~DWR's~~ the project owner's proposed change orders will be deemed acceptable to CEC staff. CEC staff, or its agents, shall give ~~DWR~~ the project owner reasonable notice (at least 24 hours) prior to unscheduled inspections of site earthwork, unless an imminent hazard requires more immediate inspection.

Soils

8-1. ~~DWR~~ The project owner will adhere to the objectives of the above Water Quality Control Plan (Basin Plan) concerning turbidity and sedimentation related to construction projects.

Verification: Immediately following any new construction activity ~~turbine roll~~, ~~DWR~~ the project owner will file a statement with the Central Valley Regional Water Quality Control Board (CVRWQCB) stipulating the methods employed by ~~DWR~~ the project owner to comply with the above requirement.

~~8-2. DWR is to construct a sedimentation containment system of terraced-ditched slopes and straw bale barriers, to be effectively maintained until revegetation of the cut and fill slopes becomes stabilized.~~

~~**Verification:** Immediately following construction DWR shall file "as-builts" of the above described system with the CVRWQCB.~~

~~8-3. DWR shall annually quantify the amount of sediments removed from the sediment collection system.~~

~~**Verification:** For three years following the commencement of commercial operation, shall annually file a tabulated report to the CVRWQCB and the CEC. This report shall also contain a record of maintenance to the sedimentation collection system, and DWR's proposed corrective measures.~~

8-4. Prior to decommissioning of the power plant, ~~DWR~~ the project owner shall prepare site restoration plans and submit them to the CEC CPM for review and approval at least six months prior to scheduled decommissioning.

Verification: At least six months prior to scheduled decommissioning, ~~DWR~~ the project owner shall submit site restoration plans to the CEC CPM for review and approval.

Civil Engineering

9-1. At least 30 days prior to submittal of proposed Grading Plans, ~~DWR~~ the project owner shall notify the CEC that the plans will be filed on or about a certain date. At least 60 days prior to intended start of site excavation and grading, ~~DWR~~ the project owner will simultaneously submit proposed Grading Plans to the CEC CPM and the CBO for review.

The CBO will, within 25 days of Grading Plan submittal, file concurrently with ~~DWR~~ the project owner and the CEC CPM, a compliance letter containing the County's review comments.

Verification: The CEC CPM will, within 50 days of receipt by CEC CPM of ~~DWR's~~ the project owner's proposed Grading Plans, file a compliance letter to notify ~~DWR~~ the project owner if the plans are acceptable to CEC staff, or, if not, of the CEC staff recommendations. Should the CEC CPM fail to file the compliance letter within 50 days, ~~DWR~~ the project owner may deem its proposed Grading Plans acceptable to CEC staff.

9-2. Upon submittal by ~~DWR~~ the project owner to the CEC CPM of adequate quality assurance/quality control procedures for inspectors of earthwork and grading, CEC staff may delegate to ~~DWR~~ the project owner responsibility for determining that such work conforms with ~~UBC 79~~ CBSC 2001 or other requirements of the certificate.

Should CEC staff delegate earthwork inspections to ~~DWR~~ the project owner, ~~DWR~~ the project owner will certify that any designated inspectors have the authority to: (a) stop excavation or grading in areas where adverse site conditions are discovered or where earthwork does not conform with the approved grading plans or change orders; and (b) require that changes or remedial work be performed to reestablish conformance or to achieve the design intent.

Verification: The CEC CPM will notify ~~DWR~~ the project owner when the quality assurance/quality control procedures have been determined to be adequate. The CEC staff or its agents, may, upon reasonable notice to ~~DWR~~ the project owner, inspect the site at any time to verify conformance of site earthwork with approved plans and change orders and/or to evaluate newly discovered adverse site conditions.

9-3. ~~DWR~~ The project owner shall keep the CEC CPM informed regarding the status of construction through monthly construction status reports.

Verification: ~~DWR~~ The project owner shall submit monthly construction reports to the CEC CPM until the start of commercial operation.

9-4. ~~DWR~~ The project owner will notify the CEC CPM when site earthwork is ready for final inspection and, upon completion of the rough grading work and at the final completion of the work, will file with the CEC CPM, two copies of the As-Graded Grading Plan, Soils Engineering Report, and Geologic Grading Report per ~~UBC Section 7015~~ CBSC 2001.

~~DWR's~~ The project owner's responsible civil engineer shall certify on the As-Graded Grading Plan that site earthwork was done in accordance with the final approved grading plan (including change orders) and satisfies the design intent.

Upon completion of site earthwork, ~~DWR~~ the project owner will prepare and maintain as a public record for the life of the project the As-Graded Grading Plans. CEC staff and its agents shall have access to these filed documents. ~~DWR~~ The project owner will not begin construction of any structure or foundation until notified by the CEC that site earthwork is acceptable to CEC staff.

Verification: The CEC staff may review the As-Graded Grading Plans and accompanying Soils Grading Report and Geologic Grading Report and may conduct a final inspection of site earthwork to verify that site earthwork complies with the accepted final grading plan. If the CEC CPM does not notify the CBO otherwise within 10 days of submittal of the final As-Graded Grading Plan and supplementary reports, the CBO may deem these documents and site earthwork acceptable to CEC staff.

9-5. ~~DWR~~ The project owner shall prepare and submit a reclamation plan to the CEC staff to restore the site to its original condition as nearly as practicable.

Verification: At least six months prior to decommissioning of the facility, ~~DWR~~ the project owner shall submit its reclamation plan to the CEC CPM for review and approval.

Structural Engineering

10-1. ~~DWR~~ The project owner shall design and construct the Bottle Rock Geothermal Power Plant and its related facilities to be in conformance with applicable laws, ordinances, standards, and practices and with the information, criteria. and methods set forth in the following documents:

- DWR Bottle Rock AFC, Section IV.D. (entitled, "Seismic Performance Criteria," revised May 22, 1980), Appendix A (Part III, entitled, "Structural Design and Construction Policy," revised May 22, 1980, and Appendix B (entitled, "A Report on Geysers Power Plants," by Dr. Haresh C. Shah, dated May 1980).

- ~~DWR~~ The project owner will use the Applied Technology Council "Tentative Provisions Applicant's responses (dated November 5, 1979) to Staff Interrogatories.

- ~~DWR~~ The project owner will use the Applied Technology Council "Tentative Provisions Record of telephone conversation, Gaylon Lee (CEC) and Dale Martfeld (DOER), July 21, 1980.

- Applicable Findings and Conclusions regarding Structural Engineering of the Joint Prehearing Conference Statement of the Commission Staff and the Applicant dated August 29, 1980.

In case of discrepancies between various criteria, laws, ordinances, and standards, the most conservative requirement will be used. For the turbine generator building, turbine generator pedestal, cooling tower, and Stretford absorber columns, ~~DWR~~ the project owner will clearly demonstrate through design calculations and drawings that the proposed final plans and specifications are based on and conform with design criteria and methods required by the certificate or that any nonconformance is justified.

Upon submittal by ~~DWR~~ the project owner to the CEC CPM of adequate quality assurance/quality control procedures for review and checking of final design plans and specifications for the proposed structure and equipment, CEC staff may delegate to ~~DWR~~ the project owner responsibility for determining that the proposed final plans and specifications comply with ~~UBC 79~~ CBSC 2001 or other requirements of the certificate.

The Lake County CBO shall review and comment on compliance of proposed plans and specifications with requirements (primarily ~~UBC 76~~ CBSC 2001) of County Ordinance ~~970~~ 2473. The CEC staff or its agent shall review ~~DWR's~~ the project owner's proposed design criteria and methods, preliminary and final plans and specifications, and upon request, may review proposed procurement specifications to determine that the proposed design or design approach conforms with terms and conditions of the certificate (other than County requirement) or, if not, that any nonconformance is justified.

If the ~~DWR's~~ the project owner's proposed design criteria or methods, final plans and specifications, and procurement specifications are not acceptable to the CEC staff, the design documents shall be modified by ~~DWR~~ the project owner until substantial compliance is attained.

~~DWR~~ The project owner shall not begin construction of any structure or foundation for which final plans and specifications have not been accepted by CEC CPM. At least 30 days prior to submittal of any design documents, ~~DWR~~ the project owner will notify the CBO and CPM CPM of the intended submittal date.

~~DWR~~ The project owner will furnish two sets of preliminary plans and specifications to both the CEC CPM and to the Lake County Chief Building Official (CBO) for review and comment concurrently with the Applicant's staff review process.

~~DWR~~ The project owner will simultaneously submit two complete sets of final structural designs, plans, and specifications for each structure and structure foundation to the ~~CAM and~~ CBO at least 75 days prior to the intended date of bid opening.

Verification: ~~DWR's~~ the project owner's design engineer(s) shall sign and/or stamp all proposed final plans and specifications, and shall certify in writing that to his personal knowledge:

- The proposed final plans and specifications are consistent with the applicable referenced criteria and with any other applicable terms and conditions of the certificates and were developed using design criteria and methods accepted by CEC staff, and

- The utility's procurement specifications for components purchased from a vendor, comply with the referenced criteria and with any other applicable terms and conditions of the certificate.

The final plans and specifications will reflect the inclusion of approved criteria, assumptions, and methods used to develop the design, and for the turbine-generator building, cooling tower, and Stretford absorber column, shall include design calculations.

The CBO will within 50 days of submittal of both preliminary and final plans and specifications by ~~DWR~~ the project owner, file concurrently with ~~DWR~~ the project owner and the CEC CPM, a compliance letter containing the county's review comments.

The CAM will, within 70 days of receipt by CEC of ~~DWR's~~ the project owner's proposed final plans and specifications, file a compliance letter to notify DWR if the proposed plans and specifications are acceptable to CEC staff or, if not, what changes are recommended by CEC staff. Should the CPM fail to file a compliance letter within 70 days, ~~DWR~~ the project owner may deem its proposed final plans and specifications acceptable to CEC

Final plans are defined as the plans upon which construction will be based (e.g., used for bid purposes).

10-2. ~~DWR~~ The project owner shall establish and maintain as public records files following documents:

- A summary of concrete strength tests;

- Copies of concrete pour sign-off sheets;

- Bolt torque inspection reports;

- Weld (yield) inspection sheets; and

- As-built drawings for the construction of civil and architectural work (changes approved by the CEC CPM shall be identified on the As-built drawings). CEC staff and its agents shall have access to these filed documents.

Verification: ~~DWR~~ The project owner shall notify the CEC CPM when the documents are available and their location.

10-3. ~~DWR~~ The project owner shall keep CEC CPM informed regarding the status of construction.

Verification: ~~DWR~~ The project owner shall submit monthly construction progress reports to the CEC CPM until the start of commercial operation.

10-4. ~~DWR~~ The project owner will notify the CEC CPM upon completion of each major structure or component.

Verification: Upon notification by ~~DWR~~ the project owner of completed construction for each major structure or component, CEC staff or its agent may perform final site inspection to determine that the finished work is accurately represented by the as-built plans and specifications and conforms with the approved final plans, specifications, and change orders.

~~DWR's~~ the project owner's responsible civil engineer shall certify in writing to the CEC that the finished work for each major structure or component is accurately depicted in the as-built plans and that it conforms with accepted final plans, specifications, and change orders.

10-5. ~~DWR~~ The project owner will file with the CEC CPM or its designated agent substantial design changes to the final plans as required by ~~UBC Section 302~~ CBSC 2001. "Substantial changes" include all changes requiring an alteration in design concept and preparation of new design plans consistent with the AFC conditions of certification. Minor changes shall be reflected in the "as-built" drawings submitted after construction.

Verification: ~~DWR~~ The project owner shall submit two (2) sets of the revised drawings, specifications, and calculations to the CEC CPM or its designated agent for review at least 30 days prior to the intended start of construction on a proposed change order or corrective measure, and will notify the CEC CPM or its designated agent at least 15 days in advance of the intended filing. Within 30 days of receipt by CEC CPM, ~~DWR's~~ the project owner's proposed change order or corrected measure will be deemed approved unless the CEC CPM notifies ~~DWR~~ the project owner otherwise.

10-6. Inspection shall be preformed in accordance with Chapters 3 and 70 of the Uniform Building Code (1979 edition). The CEC CPM or its designated agent may delegate responsibility for special and continuous inspections to ~~DWR~~ the project owner as provided in ~~Section 305, Chapter 3, of~~ the ~~UBC 1979~~ CBSC 2001. The CEC CPM or its designated agent, may upon reasonable notice, inspect the construction at any time.

~~DWR~~ The project owner will provide, through its Construction Office, a staff of field engineers and inspectors to monitor conformance with the accepted final plans, specifications, and change orders. These field engineers and inspectors will be present on site at all times to monitor construction activities.

Upon submittal by ~~DWR~~ the project owner to the CEC CPM of adequate quality assurance/quality control procedures for inspection of construction work, CEC staff may delegate to ~~DWR~~ the project owner responsibility for determining that construction work conforms with ~~UBC 79~~ CBSC 2001 or other requirements of the certificate.

Should the CEC delegate responsibility for inspections to ~~DWR~~ the project owner, ~~DWR~~ the project owner shall certify that the designated inspectors have the authority to:

- Stop construction work which does not conform with approved plans, specifications, and change orders;
- Require changes or remedial work to reestablish conformance; and
- Report substantial nonconformance to the CEC or its designated agent as soon as discovered.

Should ~~DWR~~ the project owner propose substantial corrective measures for any nonconforming construction work, ~~DWR's~~ the project owner's responsible engineer shall sign and stamp the proposed corrective plan, and specifications shall certify that they conform with the applicable criteria. Any nonconformance shall be justified by ~~DWR~~ the project owner.

Any proposed substantial corrective measures shall be reviewed by the CEC or its designated agent to determine that they conform with the applicable criteria or with the design intent.

Upon request by ~~DWR's~~ the project owner's responsible engineer, selected fabricated materials shall be inspected for compliance with contract specification, either in the supplier's shops or on site, by the utility's Engineering Quality Control Inspection Group. The test requirements shall be described in ~~DWR's~~ the project owner's contract specification or referenced standards.

Verification: ~~DWR's~~ the project owner's responsible engineer shall certify in writing to the CEC that the finished work for each major structure or component is accurately depicted in the "as-built" plans and that it conforms with accepted final plans, specifications, and change orders.

If substantial nonconforming work is discovered by any of ~~DWR's~~ the project owner's quality control engineers or inspectors, designated inspector, or by CEC staff or its agent; the discoverer will immediately notify the CEC CPM of the nonconformance.

Solid Waste Management

11-1. ~~DWR~~ The project owner shall obtain a hazardous waste generator identification number from the Department of Toxic Substances Control prior to generating any hazardous waste during construction and operations ~~ensure that any hazardous waste hauler employed has a certificate of registration from the California Department of Health Services (CDHS), Hazardous Materials Management Section.~~

Verification: ~~DWR~~ The project owner shall keep a copy of the identification number ~~letter~~ on file at the project site. ~~verifying that hazardous waste haulers have CDHS certificates of registration.~~

11-2. The only Stretford process waste is sulfur cake with some entrained process chemicals. ~~DWR~~ The project owner shall ensure that the sulfur cake is properly stored in an appropriate container and removed periodically to be sold or disposed at a site approved for such wastes. ~~Any sludge which accumulates in the cooling tower will be removed as needed and hauled by a registered hazardous waste hauler to an approved disposal site.~~

Verification: ~~DWR~~ The project owner shall submit final design plans and "As-Built" drawings to the Lake County CB0 incorporating these design features. In addition, ~~DWR~~ the project owner shall each month submit completed hazardous waste manifests to the Department of Toxic Substances Control under the California Environmental Protection Agency ~~CDHS~~ in compliance with Section 66262.20 ~~66475~~ of Title 22, CCR ~~CAC~~.

~~**11-3.** DWR shall require that hazardous wastes are taken to a facility permitted by CDHS to accept such wastes.~~

~~**Verification:** DWR shall notify the CEC, CDHS, and Solid Waste Management Board of the selected disposal site. Any notice of change in disposal sites will be submitted as changes occur.~~

11-4. If a secondary treatment system is used to abate H2S emissions, the plant may produce additional hazardous wastes. To ensure that these wastes are properly disposed, ~~DWR~~ the project owner shall submit its secondary abatement waste disposal plans, if secondary abatement is required, to the CEC for review.

Verification: The plans shall be submitted as soon as ~~DWR~~ the project owner determines secondary abatement is required, but no later than 120 days prior to operation of the secondary abatement system.

11-5. If hazardous wastes, including Stretford sulfur effluent, are stored on site for more than 90 ~~60~~ days, ~~DWR~~ the project owner shall obtain a determination from the Department of Toxic Substances Control ~~CDHS~~ that the requirements of a Hazardous Waste Facility Permit have been satisfied.

Verification: ~~DWR~~ The project owner shall notify the CEC CPM if it files an in-lieu application with the Department of Toxic Substances Control ~~CDHS~~ for the operation of a Hazardous Waste Facility.

11-6. ~~DWR~~ The project owner shall ensure that the construction wastes are taken to a waste disposal facility licensed to accept those wastes.

Verification: ~~DWR~~ The project shall notify the CEC ~~and the Solid Waste Management Board~~ of the disposal option selected for the construction waste.

11-7 Upon becoming aware of any impending waste management-related enforcement action by any local, state, or federal authority, the project owner shall notify the CPM of any such action taken or proposed to be taken against the project itself, or against any waste hauler or disposal facility or treatment operator with which the owner contracts.

Verification: The project owner shall notify the CEC CPM in writing within 10 days of becoming aware of an impending enforcement action. The CPM shall notify the project owner of any changes that will be required in the manner in which project-related wastes are managed.

11-8 The project owner shall ensure that the cooling tower sludge is tested pursuant to Title 22, California Code of Regulations, section 66262.10 and report the findings to the CPM.

Verification: The project shall include the results of sludge testing in a report provided to the CEC CPM. If four consecutive tests show that the sludge is non-hazardous, the project owner may apply to the CPM to discontinue testing.

Safety

12-1. ~~DWR~~ The project owner shall certify that Stretford system pressure vessels and liquid petroleum gas tanks have been designed, constructed and installed in accordance with Title 8, ~~California Administrative Codes (CAC)~~ California Code of Regulations (CCR) and the Tri-Services Manual and anchored to resist a force of an ELF of 0.5w.

Verification: ~~DWR~~ The project owner will prepare and submit to the CEC CPM a certificate of compliance stamped by a registered civil, mechanical or industrial engineer prior to commercial operation.

12-2. ~~DWR~~ The project owner shall certify that Stretford system tanks have been designed, constructed and installed in accordance with American Petroleum Institute (API) Standard 650 and the Tri-Services Manual and anchored to resist a force of an ELF of 0.5w.

Verification: ~~DWR~~ The project owner will prepare and submit to the CEC CPM a certificate of compliance stamped by a registered civil, mechanical or industrial engineer prior to commercial operation.

12-3. ~~DWR~~ The project owner shall certify that lube oil storage tanks are designed and constructed according to Article 145, Title 8, ~~CAC~~ CCR and anchored to resist a force of an ELF of 0.5w.

Verification: ~~DWR~~ The project owner will prepare and submit a certificate stamped by a registered civil, mechanical or industrial engineer prior to commercial operation.

12-4. ~~DWR~~ The project owner shall certify that all storage bins and cylinder anchorages for flammable and hazardous substances are designed and constructed to resist a force of an ELF of 0.5W.

Verification: ~~DWR~~ The project owner will prepare and submit a certificate of compliance stamped by a registered civil, mechanical, or industrial engineer prior to commercial operation.

12-5. ~~DWR~~ The project owner shall certify that hydrogen and oxygen systems are installed according to Articles 138 and 139, Title 8, ~~CAC~~ CCR.

Verification: ~~DWR~~ The project owner will prepare and submit a certificate of compliance stamped by a registered civil, mechanical or industrial engineer prior to commercial operation.

12-6. ~~DWR~~ The project owner shall certify that ammonia and C02 gas are stored according to Articles 107 and 76, Title 8, ~~CAC~~ CCR.

Verification: ~~DWR~~ The project owner will prepare and submit a certificate of compliance stamped by a registered civil, mechanical or industrial engineer prior to commercial operation.

12-7. ~~DWR~~ The project owner shall certify that design and construction are in reasonable conformance with the applicable fire safety codes and standards listed above.

Verification: ~~DWR~~ The project owner shall submit to the CEC CPM such certification from a registered fire safety engineer or ~~DWR's~~ the project owner's fire insurance company in a compliance report prior to commercial operation.

12-8. ~~DWR~~ Project owner shall continue to abide by an approved accident prevention program in accordance with the provisions of Section 3203 et seq. of Title 8, ~~CAC~~ CCR. (These sections include chemical handling & storage and provisions for hazardous materials and airborne contaminant exposure based on Section 5155, Title 8, ~~CAC~~ CCR.)

Verification: ~~DWR~~ Project owner shall notify the CEC CPM of any changes to the approved accident prevention program and provide verification of California Occupational Safety and Health Administration's (Cal/OSHA) approval of said changes.

12-9. ~~DWR~~ Project owner shall request California Department of Occupational Safety and Health Administration (Cal/DOSHA) to conduct on-site safety inspections during any ~~the~~ suspension of operations immediately following any complaint.

Verification: During any ~~the~~ suspension, ~~DWR~~ the project owner shall notify the CEC CPM in writing in the event of a violation that could involve DOSHA action, and the necessary corrective action.

12-10. During any ~~the~~ suspension period, ~~DWR~~ the project owner shall remove from the plant site, all chemicals, solvents and lubricants, except those essential to maintain the plant, and those only in reasonably required quantities.

Verification: Within 90 days of suspending operations ~~the Commission Order Approving Modified and Reduced Environmental Monitoring~~, ~~DWR~~ the project owner shall submit the following to the CEC CPM:

(1) a list of all hazardous chemicals and the quantities that are to remain on site during any ~~the~~ suspension period, and

(2) the signature of the responsible Plant Manager certifying compliance with this condition.

Within 90 days of receipt of the list and the Plant Manager's verification, the CEC ~~staff~~ CPM will conduct a site visit.

Transmission Line Safety and Nuisance

13-1. ~~DWR~~ The project owner shall file a "Notice of Construction or Alteration" form with the Federal Aviation Administration if it is anticipated that construction would result in a transmission line tower or any appurtenance being more than 200 feet in height above the ground level per 14 CFR, Part 77.

Verification: ~~DWR~~ The project owner shall forward a copy of any such filing to the CEC CPM.

13-2. ~~DWR~~ The project owner shall construct, operate, and maintain the transmission lines in accordance with Title 14, California Administrative Code, Sections 1254 - 1256, and Public Resources Code, Sections 4292 - 4296.

Verification: Within 30 days after completion of construction, ~~DWR~~ the project owner shall submit a statement from a responsible engineer to the California Department of

Forestry and the CEC CPM indicating that the transmission line has been constructed in accordance with applicable requirements. ~~DWR~~ The project owner shall also inspect the transmission line annually to ensure that the line maintains required clearances especially during the fire season. In the event that noncompliance is determined by the CDF, the CDF shall require ~~DWR~~ the project owner to take measures necessary to correct the noncompliance. If ~~DWR's~~ the project owner's corrective measures are unsatisfactory in the opinion of the CDF, the CDF shall inform the CEC CPM and shall recommend a course of action.

13-3. ~~DWR~~ The project owner shall ensure that, regardless of location or ownership, all ungrounded metallic fences longer than 150 feet within the right-of-way shall be grounded following the PG&E procedures outlined in the PG&E Drawing 020607, sheets 1 through 5 of 5.

Verification: Within 30 days after completion of transmission line construction, ~~DWR~~ the project owner shall file a statement verifying compliance.

13-4. In the event of complaints regarding induced currents from vehicles, portable objects, large metallic roofs, fences, gutters, or other objects, ~~DWR~~ the project owner shall investigate and take all reasonable measures at its own expense to correct the problem for valid complaints, provided that (a) the object is located outside the right-of-way, or (b) the object is within the right-of-way and existed prior to right-of-way acquisition.

For objects constructed, installed, or otherwise placed within the right-of-way after right-of-way acquisition, ~~DWR~~ the project owner shall notify the owner of the object that it should be grounded. In this case, grounding is the responsibility of the property owner. ~~DWR~~ The project owner shall advise the property owner of this responsibility in writing prior to signing the right-of-way agreement.

Verification: ~~DWR~~ The project owner shall maintain a record of activities related to this paragraph. These records shall be made available to authorized staff upon request.

13-5. ~~DWR~~ The project owner shall ensure that the design and construction of the transmission line satisfies or exceeds both the requirements of CPUC General Order 95 and the terms and conditions of CEC certification. ~~DWR~~ The project owner shall receive CEC approval for a waiver of any General Order 95 requirements. ~~DWR~~ The project owner shall also receive CEC approval for any of the following significant changes in transmission line design:

- Any change in conductor size from 1,113 kcmil.
- Any tower configuration other than as proposed in the AFC.
- Change to the number of circuits.
- Change to the voltage level of line.
- Changes in normal or emergency conductor capacity greater than 15 percent.

- Change in termination point.
- Change in route length.
- Changes to the route right-or-way width.

Verification: Within 30 days following completion of the transmission line, ~~DWR~~ the project owner shall submit to the CEC CPM a statement signed by a California registered electrical engineer which verifies compliance with the requirements of CPUC General Order 95 and with the terms and conditions of CEC certification.

13-6. On-site worker safety inspections may be conducted by the California Division of Occupational Safety and Health (CAL/DOSH) during construction and operation of the transmission line or when an employee complaint has been received. ~~DWR~~ The project owner shall notify the CEC CPM in writing in the event of a violation and shall indicate if such violation may delay the transmission line construction schedule.

Verification: ~~DWR~~ The project owner shall maintain records of CAL/Dosh inspections and shall make them available to authorized staff upon request. CAL/DOSH will notify the CEC CPM of alleged violation(s) and recommended course of action in writing within seven days of such determination.

13-7. ~~DWR~~ The project owner shall make every reasonable effort to locate and correct at ~~DWR's~~ the project owner's expense, on a case-by-case basis, all causes of radio interference and television interference attributed to the transmission line facilities, including, if necessary, the modification of receivers and the furnishing and installation of antennas. In addition, ~~DWR~~ the project owner shall take reasonable care to prevent the conductors from being scratched or abraded.

Verification: ~~DWR~~ The project owner shall maintain records of complaints and corrective action and shall make these records available to authorized staff.

13-8 The project owner shall provide the following Notice to the Cal-ISO prior to synchronizing the facility with the California transmission system:

1. At least on week prior to synchronization the facility with the grid for testing, provide the Cal-ISO a letter stating the proposed date of synchronization; and
2. At least one business day prior to synchronizing the facility with the grid for testing, provide telephone notification to the ISO Outage Coordination Department.

Verification: The project owner shall provide copies of the Cal-ISO letter to the CEC CPM when it is sent to the Cal-ISO one week prior to initial synchronization with the grid. The project owner shall contact the Cal-ISO Outage Coordination Department, Monday through Friday, between the hours of 0700 and 1530 at (916) 351-2300 at least one business day prior to synchronizing the facility with the grid for testing. A report of

conversation with the Cal-ISO shall be provided electronically to the CEC CPM one day before synchronizing the facility with the California transmission system for the first time.

Noise

16-1. ~~DWR~~ Project owner shall comply with Lake County's noise ordinance, which is 55 dBA Ld and 45 dBA Ln at any point beyond the property line of the source. In the event the Lake County ~~Air Quality Management District (LCAQMD)~~ or ~~DWR~~ the project owner receives public complaints of any noise, ~~DWR~~ project owner and ~~the LCAQMD~~ Lake County (if requested by the complainant) agree to promptly conduct an investigation to determine the extent of the problem. ~~DWR~~ Project owner shall take reasonable measures to resolve the complaints.

Protocol: Within 10 days of a request by ~~the LCAQMD~~ Lake County or the CEC CPM, ~~DWR~~ project owner shall conduct noise surveys at the sensitive receptors registering complaints and at the facility property line nearest the complaining receptors. Surveys shall be conducted, when possible, under circumstances similar to those when the complaints were perceived. The survey should be reported in terms of L_{eq} and L_z at levels x=10, 50, and 90.

Verification: ~~DWR~~ Project owner shall promptly forward to ~~the LCAQMD~~ Lake County the survey results, the mitigation measures applied to resolve the problem and the results of these efforts. ~~LCAQMD~~ Lake County shall advise the CEC CPM of any continuing noncompliance conditions.

16-2. Within 90 days after the plant reaches its rated power generation capacity and construction is complete, ~~DWR~~ the project owner shall conduct a noise survey at 500 feet from the generating station or at a point acceptable to DWR, CEC CPM, and ~~the LCAQMD~~ Lake County. The survey will cover a 24 hour period with results reported in terms of Lx (x = 10, 50, and 90), LeqZ and Ldn levels.

~~DWR~~ The project owner shall prepare a report of the survey that will be used to determine the plant's conformance with county standards. In the event that county standards are being exceeded, the report shall also contain a mitigation plan and a schedule to correct the noncompliance. No additional noise surveys of off-site operational noise are required unless the public registers complaints or the noise from the project is suspected of increasing due to a change in the operation of the facility.

Verification: Within 30 days of the noise survey ~~DWR~~ the project owner shall submit its report to ~~the LCAQMD~~ Lake County.

16-3. Within 90 days after the start of commercial operation, ~~DWR~~ the project owner shall prepare a noise survey report for the noise hazardous areas in the facility. The survey shall be conducted by a qualified person in accordance with the provisions of Title 8, ~~CAC~~ CCR, Article 105. The survey results will be used to determine the magnitude of employee noise exposure. If employee complaints of excessive noise arise during the life of the project, CAL/DOSH, Department of Industrial Relations shall make a compliance determination.

Verification: ~~DWR~~ The project owner shall notify CAL/DOSH and the CEC CPM of the availability of the report.

IT IS SO ORDERED.

Date: December 13, 2006

STATE OF CALIFORNIA
ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

JACKALYNE PFANNENSTIEL
Chairman

EXHIBIT 108

Lake County Zoning Designations Lake County Zoning Designations, Exhibit 5.1-4 of the Draft Environmental Impact Report for Steamfield Project.

Due to file size limitations, this Exhibit can be found online at:
http://www.energy.ca.gov/sitingcases/bottlerock/documents/applicant/2010-09-23_Draft_Environmental_Impact_Report_TN-58583.pdf

COUNTY OF LAKE
COMMUNITY DEVELOPMENT DEPARTMENT
Planning Division
Courthouse - 255 N. Forbes Street
Lakeport, California 95453
Telephone 707/263-2221 FAX 707/263-2225

DISTRIBUTION DATE: 09/16/2010

DOCKET	
79-AFC-4C	
DATE	SEP 16 2010
RECD.	SEP 22 2010

REQUEST FOR REVIEW

AG. COMMISSIONER	___	HIDDEN VALLEY CSD	___	TRAFFIC ADV. COMM.	___
AIR QUALITY MGMT	_X_	LAKEBED MANAGEMENT	___	TRIBES:	
ARMY CORPS	_X_	LAKEPORT CITY	___	Big Valley Rancheria	_X_
ASSESSOR	___	LAKE TRANSIT	___	Elem Colony	___
BLM	_X_	NATIVE AM. HERITAGE	___	Hinthil Env. Resource Consortium	___
BUILDING DIVISION	___	NRCS	_X_	InterTribal Council	_X_
CalFire	_X_	OFFICE OF EDUCATION	___	Lower Lake Koi	___
CALTRANS	___	PACIFIC BELL	___	Middletown Rancheria	___
CA. Energy Commission	_X_	PG&E	___	Robinson Rancheria	___
CRWQCB	___	PUBLIC SERVICES	___	Scotts Valley Band of Pomo	_X_
CULTURAL RESOURCES	___	SOLANO CO. WATER	___	Upper Lake Habematolel	___
DPW - ROADS	_X_	SONOMA STATE	___	US FOREST SVC	___
WATER RESOURCES	_X_				
FISH & GAME	_X_	SPECIAL DISTRICTS	___	WASTE DISPOSAL	___
FISH & WILDLIFE SVC	_X_	STATE DEPT. HEALTH	_X_	WATER CO:	___
FIRE DIST:	_X_	Sonoma Co. Resource Dept.	_X_	YOLO CO. FLOOD	
HEALTH DEPARTMENT	_X_	TAX COLLECTOR	___	CA. ENERGY COMMISSION	_X_

FROM: Richard Coel, Community Development Director RC

REQUEST: Review of Draft Environmental Impact Report for BRP Steam steamfield expansion project APN's: 011-012-97; 013-002-01, 03, 04 & 05 **Enclosed CD contains the Draft EIR and graphics**

APPLICANT: Bottle Rock Power, LLC

LOCATION: 6743, 6825, 7358, 7385 and 7500 High Valley Road, Cobb, CA; A Vicinity Map is attached.

PROPOSAL: The proposed *BRP Steam Project* would expand the existing geothermal steam field of the Bottle Rock Power Plant, to supply additional steam and increase the amount of power generated from approximately 18 MW to 55MW. The power plant is currently supplied by wells drilled on three well pads within the 350-acre Francisco Leasehold. The proposed project would increase the steam supply for the power plant by constructing two new well pads on the adjacent 453-acre BRP GeoResource Leasehold, located northwest of the plant.
The two new well pads could accommodate up to a total of 22 geothermal steam production wells (12-14 production wells drilled initially with up to 10 replacement wells over the 30 + year life of the project. Project implementation would result in the construction of steam supply and condensate return pipelines (approximately 1.3 miles) from the well pads to the power plant, ancillary facilities, and controls for managing steam production and accommodating additional steam at the power plant; a new access road to connect the new pads to Rabbit Valley Rd. and High Valley Rd.; Total ground disturbance would be 22.51 acres. The Draft EIR has identified an alternative location for both well pads (Alternative 3) that would reduce several environmental impacts and reduce the amount of grading and construction time.

Please review and comment on any applicable sections of this Draft EIR that your agency is concerned with, and forward your comments to me no later than Monday, November 1, 2010. The Lake County Planning Commission will be reviewing the Draft EIR and comments in November, and your comments and/or requested revisions will be responded to or integrated into the Final EIR as appropriate. You can reach me by email: richardc@co.lake.ca.us or phone at 707-263-2221 if you have questions or want to send your comments electronically.

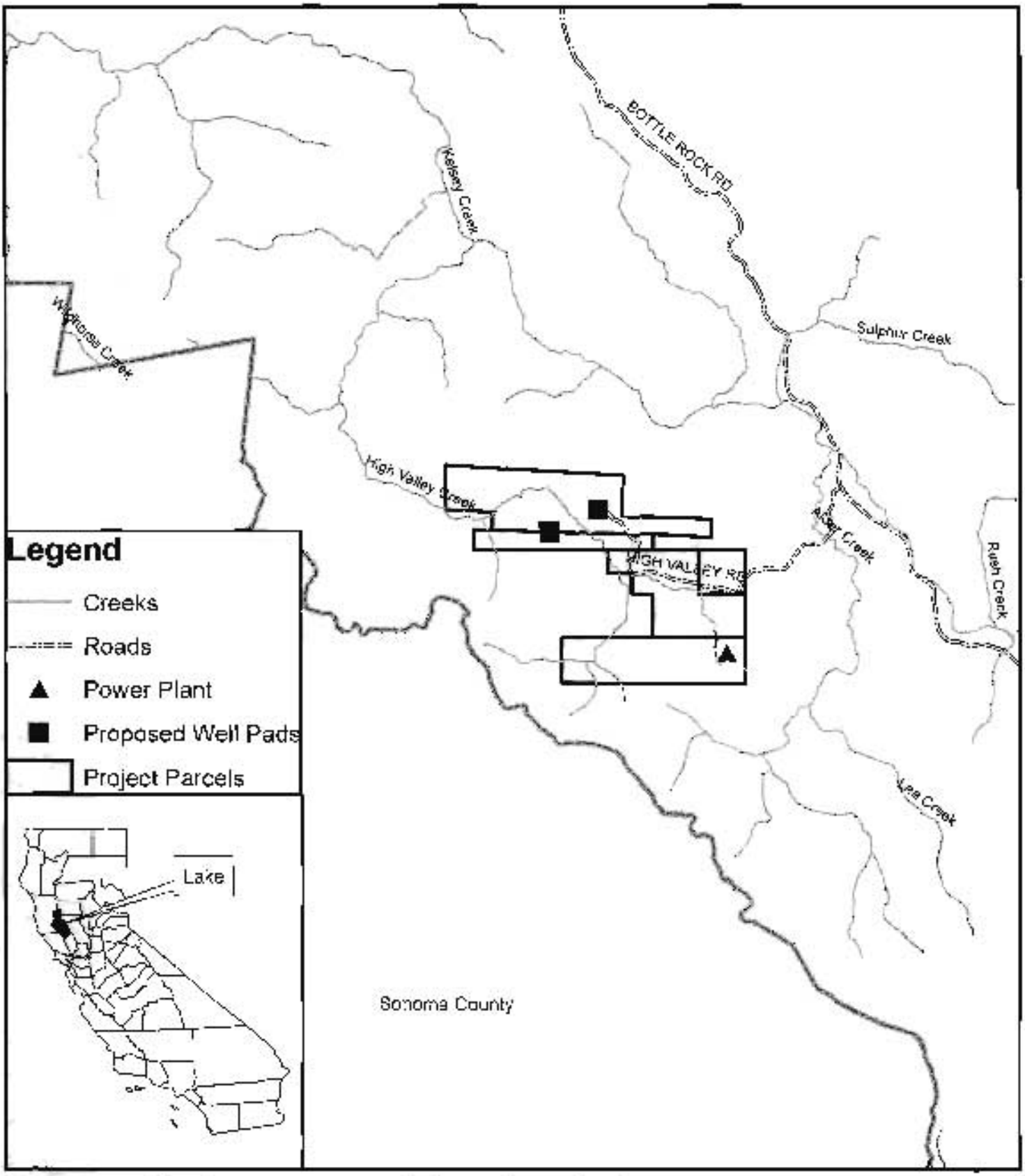
COMMENTS:_____

NAME _____ DATE _____

cc: Supervisorial District _5_ (RFR Only) Other (Examples: Sierra Club_X_/HOA___/Bus. Assoc. ___/Farm Bureau___/etc.) (RFR Only)

H:\BRP.ADEIR\100521 Admin Draft Submittal to County\reqrev.doc

Vicinity Map



Bottle Rock Power Steam Project

Draft Environmental Impact Report / Environmental Assessment

State Clearinghouse No. SCN 2009102035
September 16, 2010

County of Lake
Community Development Department
255 North Forbes St
Lakeport, CA 95453

AECOM

5.1 LAND USE, POPULATION, AND HOUSING

This section describes the existing on-site and adjacent land uses, population, and housing within the vicinity of the existing Bottle Rock Power Plant facilities. This analysis discusses the impacts of the proposed *BRP Steam Project* associated with change in land uses, specifically whether implementing the project would conflict with any applicable land use plan or induce substantial population growth in the area, potentially resulting in adverse physical impacts on the environment.

Land Use, Population, and Housing – Environmental Setting / Affected Environment

LAND USE AND PLANNING

Regional Land Use

Lake County is located within California's Pacific Coast Ranges, approximately 100 miles north of San Francisco and 50 miles east of the Pacific Ocean. Lake County is a predominantly rural jurisdiction of 857,330 acres, with over 75 percent of its area devoted to open space and agricultural land uses and only 15 percent developed for residential, commercial, and industrial uses.[1] Approximately 51 percent of the county is publicly owned, including 378,613 acres in the Mendocino National Forest. Land use cover within the region is characterized by extensive vegetation, including a variety of brushlands, grasslands, marshlands, woodlands, and forests. Urban and suburban developments are concentrated in the two incorporated cities of Lakeport and Clearlake and the approximately 20 unincorporated towns and hamlets throughout the county.

Land Uses within the Project Site

The project site (i.e., within the Francisco and BRP GeoResource Leaseholds) is located near Lake County's boundary with Sonoma and Mendocino Counties and within the northwestern portion of The Geysers, one of the largest developed geothermal resource areas in the world. With the exception of existing industrial uses (the geothermal facilities at the Bottle Rock Power Plant), two private residences occupied by Messrs. Jadicker and Fidge, and some private roads connecting the power plant to other private roads and Bottle Rock Road, the 819-acre project site consists of undeveloped open space (see **Exhibit 3.0-3** for existing land uses by assessor parcel number and leasehold area). In addition, High Valley Creek traverses the project site in a northerly direction before flowing into Kelsey Creek beyond the project site boundary.

Surrounding Land Uses

Most of the land surrounding the project site (i.e., outside of the Francisco and BRP GeoResource Leaseholds) is undeveloped, with the exception of the following land uses:

- *Residential.* Approximately 15 dwellings are situated along High Valley Road between the project site and Bottle Rock Road. The nearest residence outside the project site is located approximately 1,000 feet from proposed development.

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1 *Lake County General Plan*, County of Lake, 2008.

- *Commercial and institutional.* The closest commercial uses (e.g., grocery store, gas station, and restaurant) are located in the unincorporated community of Cobb, approximately three miles east of the project site. The closest educational facility is Intermountain High School, located one and a half miles to the northeast. Cobb Mountain Elementary is located approximately two miles southeast of the project site.
- *Recreational.* Nearby recreation facilities include the private Yogi Bear campground, Rob Roy and Adam Springs golf courses, and Boggs Mountain State Park; all located approximately two to three miles from the project site.
- *Industrial.* The project site includes the Bottle Rock Power Plant and geothermal steam field, comprised of the Francisco and BRP GeoResource Leaseholds. Two other geothermal power plants, Calpine Eagle Rock 11 and Calpine Lakeview 17, are located south of the project site in Sonoma County.
- *Agricultural.* The Moore Family vineyard, the nearest agricultural development site, is approximately three miles north of the project site.

REGIONAL PLANNING DESIGNATIONS

The project site is located within the Cobb Mountain Planning Area (CMPA) of Lake County, as shown in **Exhibit 5.1-1**.[2] According to the *Lake County General Plan*, existing land uses in the CMPA are characterized as approximately 58 percent rural land, 25 percent resource conservation, eight percent agriculture, and nine percent residential and commercial. According to the *Lake County Zoning Ordinance*, approximately 50 percent of the CMPA is designated Rural Land, and other significant use categories include Resource Conservation, Timber Preserve, and Open Space.

Approximately 25 percent of the CMPA falls within the County's Primary Geothermal Resource Area (PGRA). The PGRA, shown in **Exhibit 5.1-2**, delineates the portion of The Geysers that lies within the CMPA where geothermal development is expected. Within the PGRA, geothermal development has priority over other uses.

Lake County Planning Designations at the Project Site

The project site is located in the south-central portion of the CMPA and is a six and a half-mile drive northwest of Cobb via Bottle Rock and High Valley Roads. The *Lake County General Plan* land use designation for the parcels containing the project site is Rural Lands (RL) (see **Exhibit 5.1-3**), and the zoning designations are Planned Development Residential-B-Frozen (PDR-BF) and Rural Lands (RL) (see **Exhibit 5.1-4**). The parcels containing the project area consist of 819 acres (291 acres are zoned RL and 528 acres are zoned "PDR-BF"). The proposed project includes a rezone request of approximately 115 acres from "PDR-BF" to "RL-BF".

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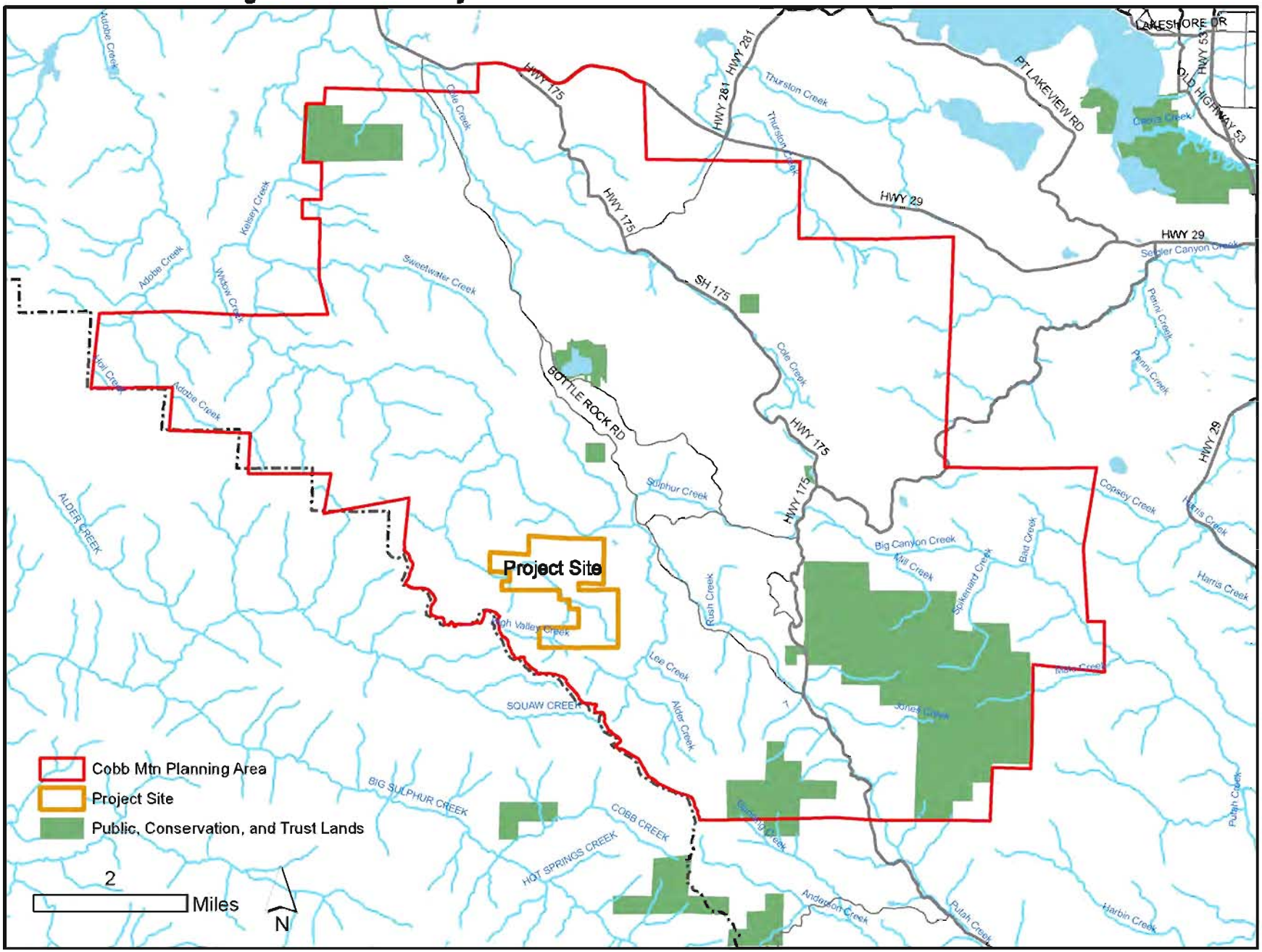
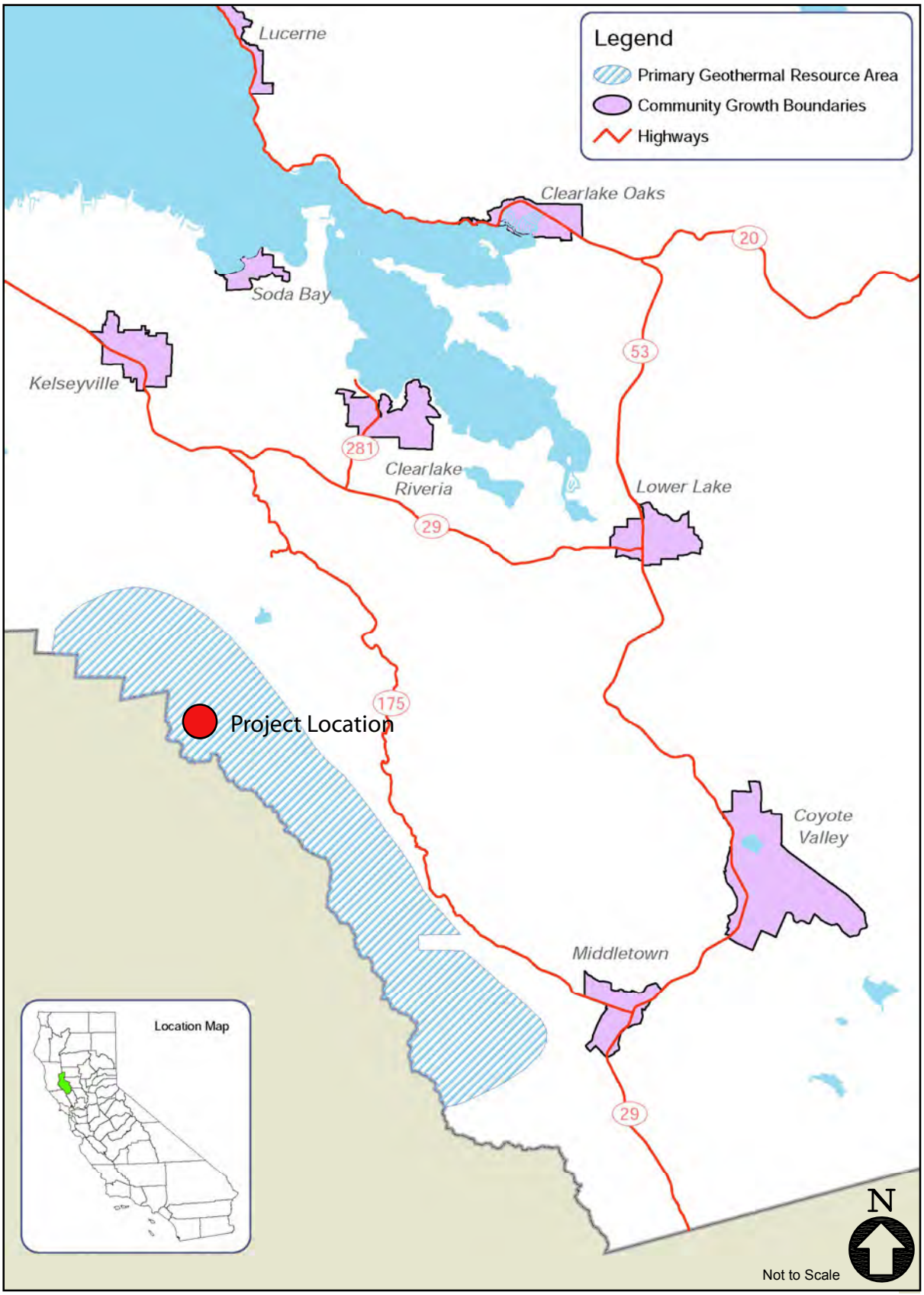
2 *Cobb Mountain Area Plan*, County of Lake, 1989.

Exhibit 5.1-1
Cobb Mountain Planning Area of Lake County



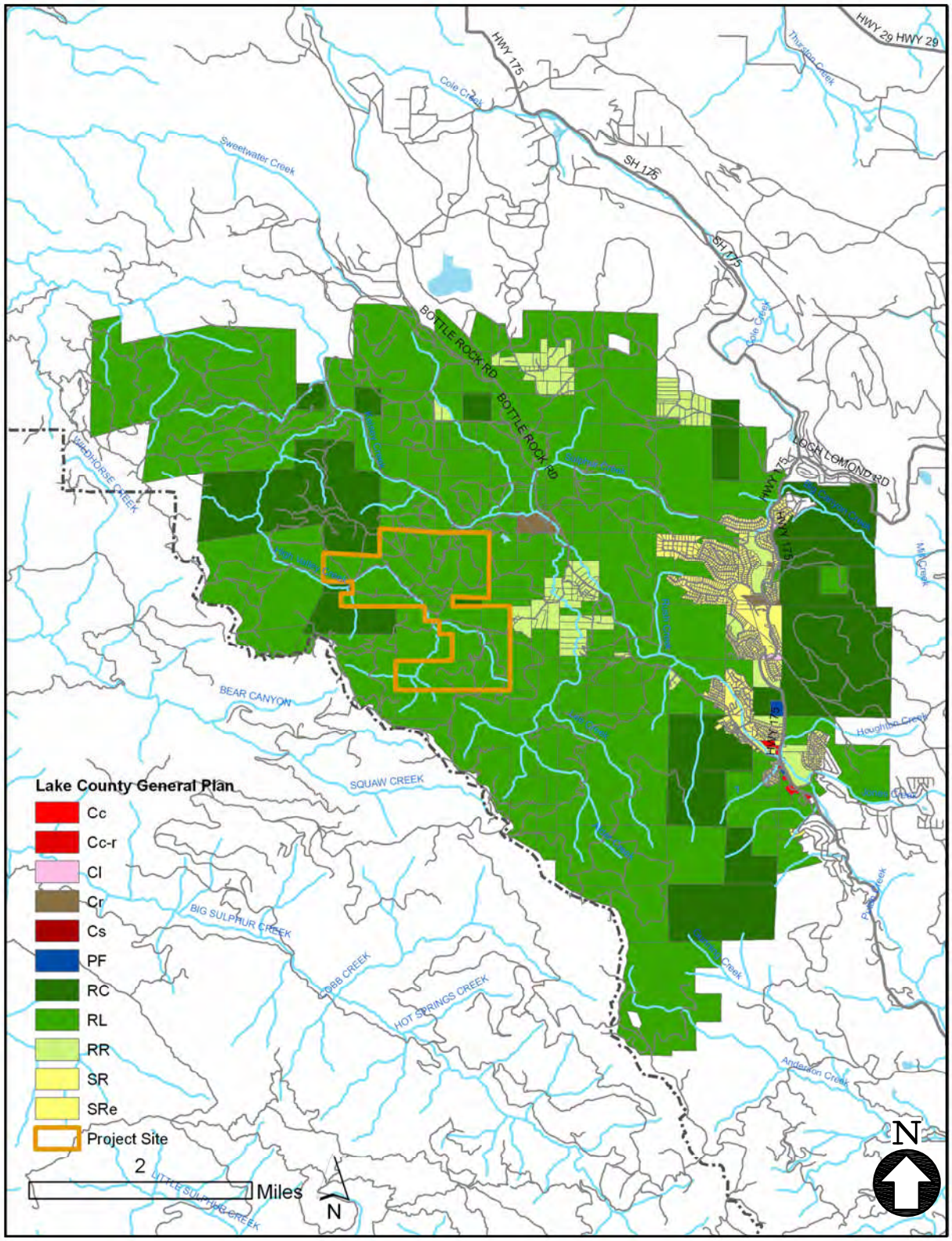
Source: Cobb Mountain Area Plan, County of Lake, 1989.

Exhibit 5.1-2
Primary Geothermal Resource Area within Lake County



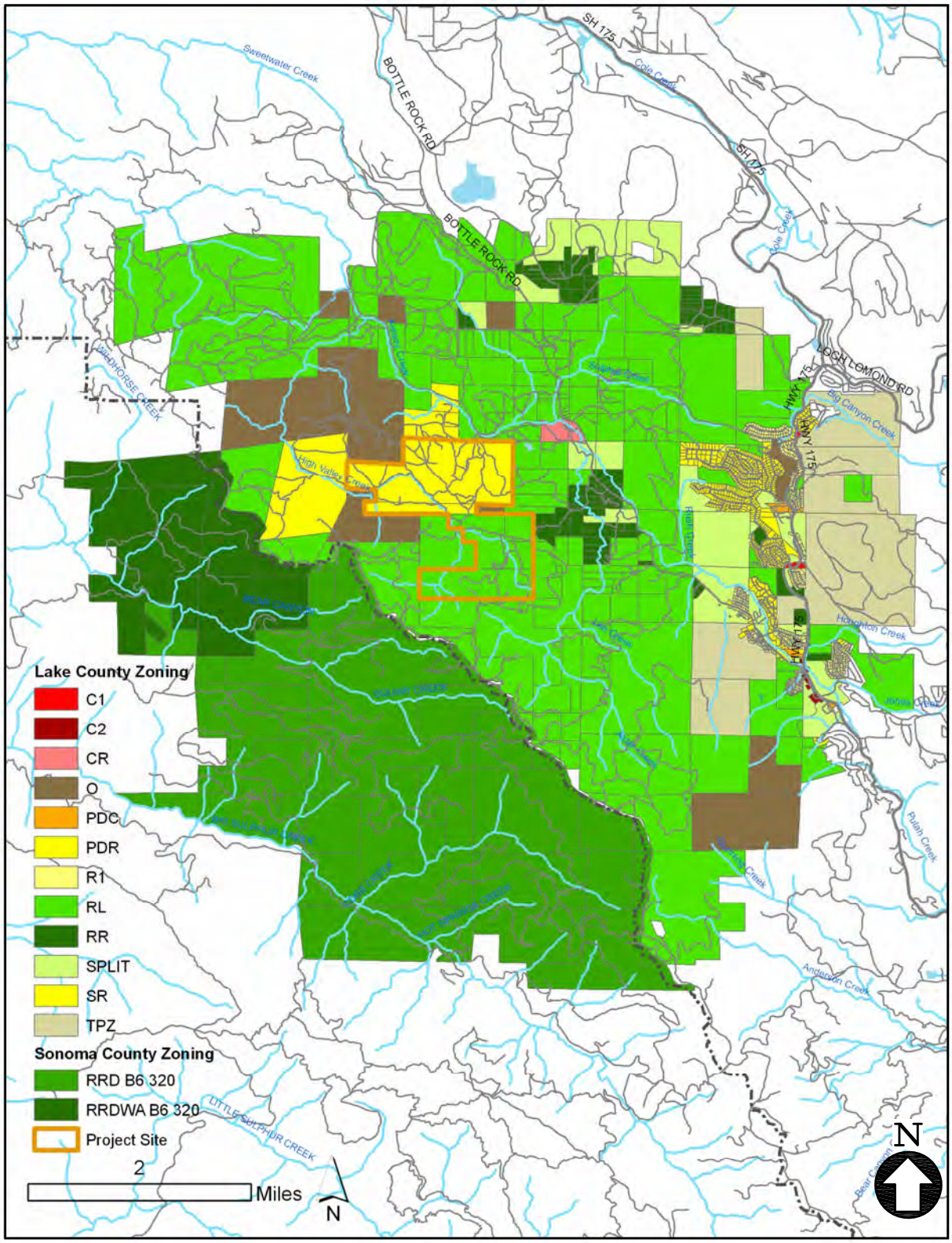
Source: Lake County General Plan, 2008.

Exhibit 5.1-3
Lake County General Plan Land Use Designations



Source: Cobb Mountain Area Plan, County of Lake, 1989.

Exhibit 5.1-4
Lake County Zoning Designations



Source: Cobb Mountain Area Plan, County of Lake, 1989.

In addition to these designations, the project is located within the Primary Geothermal Resource Area as identified by the *Lake County General Plan* and Cobb Mountain Area Plan (CMAP). The "B-Frozen" (BF) combining district prevents subdividing of the property into smaller parcels. A "Waterway" (WW) combining district that protects surface waters and riparian corridors, in this case High Valley Creek, is also included on the detailed zoning designations map of the area (see **Exhibit 5.1-5**).

Lake County Planning Designations for Adjacent Lands

Most of the lands in the areas surrounding the project site have a *Lake County General Plan* land use designation of RL. Additionally, the project site is bordered by areas with Resource Conservation (RC) and Rural Residential (RR) land use designations (see **Exhibits 5.1-3 and 5.1-4**). Zoning of parcels abutting the project site is entirely RL-BF or RL-BF-WW, except for three Open Space (O) parcels on federal lands, and one PDR-BF parcel and one PDR-BF-WW parcel that make up part of the Binkley Family Trust (see **Exhibit 5.1-5**).

POPULATION, HOUSING, AND EMPLOYMENT

Population

In 2008, the U.S. Census Bureau estimated Lake County's population to be 64,866 persons, which represents an 11.2 percent increase from the 2000 population. The county grew faster than the statewide rate of 8.5 percent for the same time period; this is partially attributed to its relatively affordable housing prices and attractiveness for retirees. Persons 65 years or older represented 16.2 percent of the county population versus 11.2 percent statewide. [3]

The 2009 Census Bureau population estimate for the Cobb Mountain Planning Area was 3,982 persons, approximately 500 more persons than the 2000 population, representing a 14 percent increase. Most of this increase was a result of infill development within existing subdivisions in Cobb. The *Lake County General Plan* does not contain growth projections for the Cobb planning area. However, through the year 2030, the *Lake County General Plan* assumes a 0.75 percent annual growth rate in rural areas such as Cobb.

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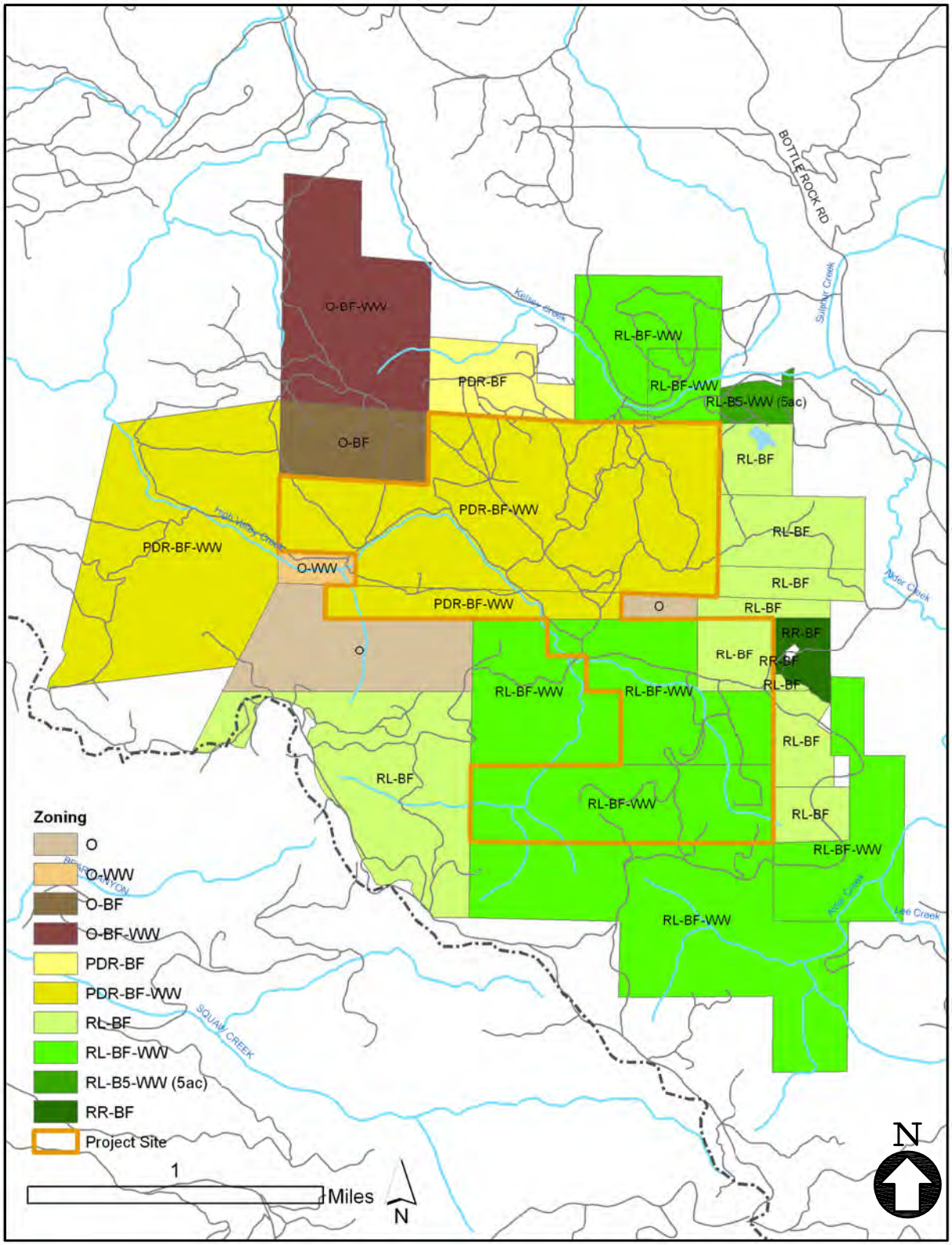
[3] *Quick Facts tables, Lake County California Population & Housing*, U.S. Census Bureau, November 2009.

Exhibit 5.1-5
Detailed Lake County Zoning Designations



Source: Cobb Mountain Area Plan, County of Lake, 1989.

Housing

In 2008, the Census Bureau estimated that 35,243 dwelling units existed in Lake County, and approximately 95 percent of those dwellings were detached, single-family structures. Owner occupancy was estimated at 70.6 percent, above the statewide rate of 56.9 percent, reflecting the county's rural character where home ownership is traditionally more prevalent. In addition to permanent housing, the county had approximately 100 lodging and recreation vehicle establishments to accommodate temporary housing needs and tourism. [4]

The 2009 Census Bureau estimated the 2,335 housing units existed within the CMPA. Of these housing units, approximately 63 percent were occupied and 37 percent were vacant, consistent with the relatively large number of vacation homes in the area.

Employment

Based on job data from the California Employment Development Department, Lake County had 14,890 jobs in 2006. That number has since been reduced by the ongoing economic recession, but the share of jobs by employment sectors remains relatively unchanged. The largest employment sector is government, with approximately 30 percent of jobs, followed by trade/transportation/utilities at 19 percent (much of it in geothermal power generation related to The Geysers), and education/health at 14.5 percent. Natural resources, mining, and construction accounted for six percent of total employment. [5]

Currently, the CMPA has an estimated 84 businesses with 724 jobs. The area's employment is dominated by the utilities sector, which accounts for nearly 63 percent of the jobs and is consistent with the presence of the geothermal industry related to The Geysers. Other employment in the county is spread across the agriculture, mining, construction, real estate, retail trades, services, and government sectors.

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4 *Lake County Visitors Guide*, County of Lake, 2009.

5 *Lake County Labor Market Information Report*, California Employment Development Department, 2007.

Land Use, Population, and Housing – Regulatory Framework

FEDERAL AND STATE

There are no federal or State land use, population, and housing regulations that are directly applicable to the proposed project.

COUNTY / LOCAL REGULATIONS

Lake County General Plan

The *Lake County General Plan* contains goals, objectives, policies, and maps that provide guidance for future development in the county. **Exhibit 5.1-6** presents the *Lake County General Plan* land use policies that are applicable to the proposed project.

Lake County Zoning Ordinance

The *Lake County Zoning Ordinance* includes zoning designations that implement General Plan land use designations at the parcel level as well as development standards to achieve general plan objectives and policies. **Exhibit 5.1-7** presents the zoning regulations that are applicable to the proposed project. These include development and performance standards for the "RL" zoning district and "WW" combining district procedures for issuing major use and zoning clearance permits (the latter would be required when the project sponsor applies for county grading and building permits).

Cobb Mountain Area Plan

The CMAP is one of ten area plans in the county that provide additional guidance for future development beyond that provided in the General Plan. The CMAP contains resource inventories, issues of concern, and policy analyses that are intended to form the basis for General Plan land use and zoning designations. **Exhibit 5.1-8** lists the CMAP policies that are applicable to the project.

Big Valley Groundwater Management Plan [6]

The Big Valley Groundwater Basin is a major resource for the county's agricultural sector and is subject to a Groundwater Management Plan administered by the Big Valley Groundwater Management Zone Commission. The project is located in the Kelsey Creek sub-watershed of the Big Valley Basin.

Exhibit 5.1-9 presents the provisions of the Groundwater Management Plan that are applicable to the project. These provisions acknowledge the potential connection between geothermal development and groundwater quality and quantity as well as the intention of the Big Valley Groundwater Management Zone Commission to evaluate and comment on projects that may affect groundwater.

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6 *Big Valley Groundwater Management Plan*, Lake County Water Resources Division, 1999.

Exhibit 5.1-6
Applicability and Consistency with Lake County General Plan Policies

General Plan Policies	Applicability to Project	Project Consistency?
3.8 Industrial Development		
Policy LU-5.4 Compatibility with Surrounding Land Use The County shall ensure that appropriate industrial/heavy commercial sites will not result in significant harmful impacts to adjacent land uses. In addition, sites should be designed to prevent the intrusion of incompatible uses into industrial areas. Infilling of existing industrial areas is highly desirable where feasible.	The project is located within the Primary Geothermal Area and represents an incremental expansion of geothermal/industrial land use in the vicinity of residences; significant impacts to residences must be mitigated.	Project would be consistent with this policy with incorporation of recommended mitigation measures.
Policy LU-5.5 Access The County shall locate industrial development where there is access from collector or arterial roads, and where industrial/heavy commercial traffic is not routed through residential or other areas with uses not compatible with such traffic.	The use of High Valley Road for construction and operations traffic must be mitigated in residential areas. The project proposes to expand an existing geothermal operation already served by High Valley Road.	Project would be consistent with this policy with incorporation of recommended mitigation measures.
3.9 Economic Development		
Policy LU-6.1 Diverse Economic Base The County shall actively promote the development of a diversified economic base by continuing to promote agriculture, recreation services, and commerce, and by expanding its efforts to encourage industrial and non-industrial corporate development, and the development of geothermal resources.	The project is an incremental expansion of existing geothermal operations that contribute to the local economic base. Although the power plant already exists, the addition of two new well pads and increased steam would create additional permanent jobs.	Project would be consistent with this policy.

General Plan Policies	Applicability to Project	Project Consistency?
6.1 Roads and Highways		
Policy T-1.1 Provisions of Adequate Road Network The County shall establish a road network to accommodate projected growth in traffic volume resulting from residential development, commercial and tourism expansion, and geothermal activity and other industrial development.	Bottle Rock Road has capacity and history of carrying geothermal traffic.	Project would be consistent with this policy.
Policy T-1.5 Roadways in Residential Areas The following standards should be applied to the development of roads within residential areas: Avoid locating facilities providing through-traffic access in residential areas.	The use of High Valley Road for construction and operations traffic must be mitigated in residential areas.	Project would be consistent with this policy with incorporation of recommended mitigation measures.
7.1 General		
Policy HS-1.1 Development Constraints The County shall permit development only in areas where the potential danger to the health and safety of people can be mitigated to an acceptable level.	Project is proximate to residences. Any significant impacts to the health and safety of nearby residents must be mitigated.	Project would be consistent with this policy with incorporation of recommended mitigation measures.
Policy H-2.1 Hillside Development Areas in excess of 30 percent slope or in mapped naturally occurring asbestos areas may require submittal of engineered plans for all construction and grading, at the discretion of the Community Development Department. These plans shall address roads, utility corridors, and similar off-site improvements as well as erosion and dust control. Development in other areas possessing potential landslide risk, regardless of slope, shall require engineered plans and/or geotechnical study prior to discretionary approval or approval of grading or building permits.	The project's design and construction would be subject to County permit standards and conditions for hillside development. All grading, stormwater, and erosion control plans would be designed by a California-licensed civil engineer.	Project would be consistent with this policy.
Policy HS-2.2 Development Near Fault Zones The siting of residential, commercial, recreational, or industrial structures on or adjacent to known active or potentially active fault zones should be avoided.	Geothermal facilities are necessarily sited near fault zones in The Geysers as a function of resource access. No new significant buildings are proposed.	Project would be consistent with this policy.

General Plan Policies	Applicability to Project	Project Consistency?
Policy HS-2.6 Development Criteria The County should consider geologic and seismic criteria in its permitting authority, and in determination of land use policies and development decisions, particularly in identified study areas.	The project EIR/EA includes analysis of geologic and seismic data for use in developing mitigation measures and permit conditions.	Project would be consistent with this policy.
7.3 Air Quality		
Policy HS-3.2 Best Available Air Pollution Control Technologies The County shall require the use of the best available air pollution control technologies to maintain healthful air quality and high visibility standards, along with continuing compliance with State and Federal Ambient Air Quality Standards.	The project's design, construction, and operation would be subject to County permit standards and conditions for BACT.	Project would be consistent with this policy.
Policy HS-3.7 Development Requirements The County shall require developments to be located, designed, and constructed in a manner that would minimize the production of air pollutants.	The project's design and construction would be subject to County permit standards and conditions for air pollutant reduction.	Project would be consistent with this policy with incorporation of recommended mitigation measures.
Policy HS-3.8 County Review of Development Proposals The County shall require consideration of alternatives or amendments that reduce emissions of air pollutants when reviewing project applications.	The project's design and construction would be subject to County permit standards and conditions for air pollutant reduction. This document evaluates alternatives to the proposed project.	Project would be consistent with this policy.
Policy HS-3.9 Air Quality Analysis The County may require an analysis of potential air quality impacts associated with significant new developments through the environmental review process, and identification of appropriate mitigation measures prior to approval of any major development project.	The project EIR/EA includes analysis of air quality data for use in developing mitigation measures and permit conditions.	Project would be consistent with this policy.
Policy HS-3.10 Dust Suppression During Construction The County shall require dust suppression measures for grading activities, and asbestos dust hazard mitigation plans for projects located in Naturally Occurring Asbestos Areas.	The project's construction would be subject to County permit standards and conditions for dust suppression and asbestos hazard mitigation.	Project would be consistent with this policy with incorporation of recommended mitigation measures.

General Plan Policies	Applicability to Project	Project Consistency?
Policy HS-3.11 Asbestos Inspection During Construction The County shall require that all projects requiring a grading permit or a building permit that would result in earth disturbance, in areas likely to contain naturally occurring asbestos, utilize approved asbestos dust mitigation measures as required by the LCAQMD, CARB and the Lake County Community Development Department.	The project's construction would be subject to County permit standards and conditions for dust suppression and asbestos hazard mitigation.	Project would be consistent with this policy with incorporation of recommended mitigation measures.
7.5 Hazardous Materials		
Policy HS-5.6 Contamination Prevention The County shall review new development proposals to ensure that soils, surface water and groundwater are protected from contamination.	The project EIR/EA includes analysis of soil, surface water, and groundwater data for use in developing mitigation measures and permit conditions to prevent contamination.	Project would be consistent with this policy.
8.1 Noise		
Policy N-1.1 Noise Compatibility Guidelines The County shall consider the compatibility of proposed land uses, utilizing the standards in Table 8-1, with the noise environment when preparing or revising community area plans and when reviewing development proposals. Where proposed land uses are likely to produce noise levels exceeding the "normally acceptable" criteria (e.g. "conditionally acceptable", "normally unacceptable"), the County shall require an acoustical analysis prior to development approval to ensure noise mitigation measures are included. Land uses should be prohibited from locating in areas with a noise environment within the "unacceptable" range.	The project's design, construction, and operations would be subject to County permit standards and conditions to insure noise compatibility.	Project would be consistent with this policy with incorporation of recommended mitigation measures.

General Plan Policies	Applicability to Project	Project Consistency?
Policy N-1.2 Sensitive Receptors The County shall prohibit the development of new commercial, industrial, or other noise generating land uses adjacent to existing residential uses, and other sensitive noise receptors such as schools, health care facilities, and libraries if CNEL is expected to exceed 55 dBA during daytime (7Am to 10PM) or 45 dBA during nighttime (10PM to 7AM), measured at the property line of the noise sensitive land use, unless effective mitigation measures are incorporated into the project design.	Any project-related, significant noise impacts to nearby residences would be mitigated.	Project would be consistent with this policy with incorporation of recommended mitigation measures.
Policy N-1.7 Noise Controls During Construction The County shall require contractors to implement noise-reducing mitigation measures during construction when residential uses or other sensitive receptors are located within 500 feet.	Any project-related, significant construction noise impacts to nearby residences would be mitigated.	Project would be consistent with this policy with incorporation of recommended mitigation measures.
9.1 Biological Resources		
Policy OSC-1.1 Protection of Rare and Endangered Species The County should ensure the protection of environmentally sensitive wildlife and plant life, including those species designated as rare, threatened, and/or endangered by State and/or Federal government.	Any project-related, significant impacts to designated wildlife and plant life would be mitigated. Note: The proposed project is unable to mitigate impacts to serpentinite plants to a less-than-significant level.	Project would be inconsistent with this policy, even with incorporation of recommended mitigation measures.
Policy OSC-1.4 Protect Riparian Corridors The County shall require that buildings and other forms of development be set back from riparian corridors to avoid damage to habitat.	Any project-related, significant impacts to the riparian corridors of High Valley Creek and its tributaries would be mitigated.	Project would be consistent with this policy with incorporation of recommended mitigation measures.
Policy OSC-1.15 Protect Natural Resources The County shall strive to protect natural resource areas, fish and wildlife habitat areas, scenic areas, open space areas, and parks from encroachment or destruction by incompatible development and invasive species.	Any project-related, significant impacts to designated natural resources would be mitigated.	Project would be consistent with this policy with incorporation of recommended mitigation measures.

General Plan Policies	Applicability to Project	Project Consistency?
9.2 Scenic Resources		
Policy OSC-2.13 Control of Light and Glare The County shall require that all outdoor light fixtures including street lighting, externally illuminated signs, advertising displays, and billboards use low-energy, shielded light fixtures which direct light downward (i.e., lighting shall not emit higher than a horizontal level). Where public safety would not be compromised, the County shall encourage the use of low energy lighting for all outdoor light fixtures.	The project's design and operations would be subject to County permit standards and conditions to control light and glare.	Project would be consistent with this policy with incorporation of recommended mitigation measures.
9.8 Cultural Resources		
Policy OSC-8.1 Evaluation of Cultural and Archaeological Resources The County should participate in and support efforts to identify its significant cultural and archaeological resources using appropriate State and Federal standards.	The project EIR/EA includes analysis of cultural and archaeological data for use in developing mitigation measures and permit conditions to protect such resources.	Project would be consistent with this policy with incorporation of recommended mitigation measures.
Policy OSC-8.13 Discovery of Archaeological/Paleontological Resources In the event that archaeological/paleontological resources are discovered during ground disturbing activities, the County shall require that grading and construction work within 100 feet of the find shall be suspended until the significance of the features can be determined by a qualified professional archaeologist/paleontologist as appropriate. The County will require that a qualified professional archaeologist/paleontologist make recommendations for measures necessary to protect the find; or to undertake data recovery, excavation, analysis, and curation of archaeological/paleontological materials as appropriate.	The project's construction would be subject to County permit standards and conditions applicable to the discovery of designated resources.	Project would be consistent with this policy with incorporation of recommended mitigation measures.
10.1 Research and Development		
Policy GR-1.6 Data Collection and Monitoring The County shall establish and maintain a geothermal database which will include information submitted for project applications, economic information (employment, production, etc.), monitoring results, and other appropriate information.	Unknown status of County database management. General Plan Implementation Measure 2.0 targets 2012 as deadline for completion of database.	Project would be consistent with this policy with incorporation of recommended enhancement measures.

General Plan Policies	Applicability to Project	Project Consistency?
10.2 Environmental Protection		
Policy GR-2.1 Avoid Siting Near Sensitive Receptors The County should avoid approving new geothermal operations near residences, commercial resorts, or other sensitive receptors where it can be reasonably expected to adversely affect their quality of life.	The project would be an expansion of an existing operation that already contains a power plant, two well pads, and an equipment yard. Any significant noise or other impacts that would adversely affect the quality of life of nearby residents would be mitigated.	Project would be consistent with this policy with incorporation of recommended mitigation measures.
Policy GR-2.2 Development Near Geothermal Resource Areas Developments proposed for residential, commercial resort or other sensitive receptors shall be discouraged in the primary geothermal resource areas where there is reasonable likelihood of geothermal development in the future.	The project would allow an incremental expansion of existing geothermal operations in the PGRA.	Project would be consistent with this policy.
Policy GR-2.3 Siting of Facilities Facilities (including transmission lines and pipelines) shall be sited consistent with the Geothermal Setback Ordinance and shall also be sited to minimize visual impacts by: • Avoiding interference with scenic views and ensuring that facilities will be visually integrated with the surrounding setting to the greatest extent possible.	This site is outside of the area defined by the Geothermal Setback Ordinance. Siting and design of well pads, access roads, and new/reconstructed steam pipeline to the power plant. New pads are proposed in locations that would minimize visual impacts to area property owners. Any project-related, significant visual impacts would be mitigated.	Project would be consistent with this policy with incorporation of recommended mitigation measures.

General Plan Policies	Applicability to Project	Project Consistency?
Policy GR-2.4 New Technologies to Reduce Environmental Impacts The County will encourage the development and testing of new technologies to further reduce environmental impacts. Additionally, Naturally Occurring Asbestos shall be avoided where feasible, or otherwise mitigated as necessary to minimize the release of asbestos dust.	The project's design, construction, and operations would be subject to County permit standards and conditions to reduce adverse environmental impacts, including dust suppression and asbestos hazard mitigation.	Project would be consistent with this policy with incorporation of recommended mitigation measures.
Policy GR-2.5 Directional Drilling The County shall encourage resource developers to plan for and use directional drilling and other measures designed to minimize land disturbance wherever feasible and appropriate to avoid environmental impacts.	The project's design would be subject to County permit standards and conditions to minimize land disturbance and mitigate any significant impacts.	Project would be consistent with this policy.
Policy GR-2.6 Avoid Use of Water Needed for Other Land Uses The County shall ensure that geothermal projects do not adversely impact water needed for other beneficial uses.	Project is proximate to residences using groundwater and is within the upper Big Valley watershed that serves agricultural uses. The project's design, construction, and operations would be subject to County permit standards and conditions to protect water resources, including mitigation of any significant impacts.	Project would be consistent with this policy with incorporation of recommended mitigation measures.
Policy GR-2.9 Prevention and Detection of Water Pollution Geothermal operators shall utilize best available control technologies to prevent and rapidly detect water pollution.	The project's operations would be subject to County permit standards and conditions to detect water pollution.	Project would be consistent with this policy with incorporation of recommended mitigation measures.
Policy GR-2.11 Geotechnical Investigations for Exploratory Drilling Detailed geotechnical investigations shall be required prior to all exploratory drilling for geothermal resources.	Geotechnical investigations have been prepared for the proposed wells, and are part of the project EIR/EA analysis.	Project would be consistent with this policy.

General Plan Policies	Applicability to Project	Project Consistency?
Policy GR-2.12 Erosion Control and Soil Stabilization Erosion control and soil stabilization techniques, including post-construction best management practices (BMPs), shall be implemented and continued throughout the life of each project.	The project's design, construction, and operations would be subject to County permit standards and conditions to control erosion and stabilize soil.	Project would be consistent with this policy with incorporation of recommended mitigation measures.
Policy GR-2.14 BACT Air Quality Measures for Geothermal Operations Geothermal operations shall be planned and carried out using the best available air pollution control technology (BACT) consistent with the requirements of the Lake County Air Quality Management District. Appropriate operating practices shall be used to minimize emissions, avoid vegetation damage and increased fog or haze conditions, prevent nuisance odors, and control dust.	The project's design, construction, and operations would be subject to County permit standards and conditions to control air pollution and dust, minimize vegetation damage, and prevent nuisance odors.	Project would be consistent with this policy with incorporation of recommended mitigation measures.
Policy GR-2.15 Minimization of Air Emissions Wherever practical, steam fields and power plants shall be intertied and equipped with automated supervisory control systems or other design measures to minimize air emissions during events initiated as a result of a forced outage, scheduled outage, startup, or curtailment. Steam fields shall only be connected and operated with power plants incorporating best available control technology (BACT) as determined by the Lake County Air Quality Management District.	The project's design and operations would be subject to County permit standards and conditions to manage air quality.	Project would be consistent with this policy with incorporation of recommended mitigation measures.
Policy GR-2.17 Preventative Noise Abatement Program The County shall require a preventative noise abatement program incorporating BACT design features for construction, operation, and maintenance of pipelines, for all geothermal development, power transmission lines, and power plant projects and associated facilities and activities.	The project's design, construction, and operations would be subject to County permit standards and conditions to manage noise.	Project would be consistent with this policy with incorporation of recommended mitigation measures.

General Plan Policies	Applicability to Project	Project Consistency?
Policy GR-2.18 Update Emergency Plans Emergency plans shall be prepared and updated for incidents related to geothermal operations, including but not limited to blow-outs, fluid spills, earthquakes, fires, and worker accidents, consistent with the policies and procedures of responsible public safety agencies. Specifically, the plans shall ensure that cooperation exists between industry security, medical and firefighting personnel and corresponding public safety agencies.	The project's design, construction, and operations would be subject to County permit standards and conditions for emergency plans related to geothermal operations.	Project would be consistent with this policy.
Policy GR-2.19 Minimize Generation of Hazardous Materials Geothermal activities shall occur in a manner that minimizes the generation of hazardous materials and waste, and allows for their recycling whenever practical.	The project's operations would be subject to County permit standards and conditions for minimizing the generation of hazardous waste.	Project would be consistent with this policy with incorporation of recommended mitigation measures.
Policy GR-2.20 Minimizing Induced Seismicity Geothermal operations shall be planned and carried out using appropriate technologies and operating practices to minimize the impacts of induced seismicity on sensitive receptors.	The project's operations would be subject to County permit standards and conditions for monitoring and managing the impacts of induced seismicity on nearby residences. This project does not propose substantial amounts of reinjection.	Project would be consistent with this policy.
Policy GR-2.21 Monitoring and Analysis of Induced Seismicity The County shall request developers of geothermal operations to monitor and analyze seismic data to determine the effects of geothermal production and injection on the seismic activities associated with the development.	The project's operations would be subject to County permit standards and conditions for monitoring and managing the impacts of induced seismicity; the project operator is also participating on the County seismic monitoring advisory committee.	Project would be consistent with this policy with incorporation of recommended enhancement measures.

General Plan Policies	Applicability to Project	Project Consistency?
Policy GR-2.22 Development and Use of Access Roadways Developers shall be responsible for providing access to operations from public thoroughfares via new or existing roads. New roads shall be built and maintained to acceptable safety standards.	The project's design, construction, and operations would be subject to County permit standards and conditions for access roads. High Valley Road is a private road that is, and would continue to be maintained by the applicant.	Project would be consistent with this policy.
Policy GR-2.23 Final Closure and Reclamation of Geothermal Operations All aboveground geothermal facilities shall be removed or converted and the site(s) reclaimed upon completion of the life of the facility. Adequate financial assurances shall be submitted for approval as part of the project's final development plan.	The project's operations would be subject to County permit standards and conditions for final closure and site reclamation.	Project would be consistent with this policy.
10.3 Resource Utilization		
Policy GR-3.1 Documentation of Sufficient Geothermal Resources Prior to approval of new power plants, documentation shall be provided demonstrating sufficient geothermal resources to support existing and proposed power generation.	Although this General Plan policy does not apply to the proposed steam field expansion project, the project EIR/EA analysis includes steam supply documentation provided by the operator to the CEC and the BLM.	Project would be consistent with this policy.
10.4 Collaboration and Public Outreach		
Policy GR-4.1 Involve Public on Permitting Procedures and Projects The County shall provide information to the public regarding geothermal permitting procedures and current and proposed projects in a clear, timely, and comprehensive manner.	The project is participating in the EIR/EA process, which includes making project information available to the public.	Project would be consistent with this policy.

General Plan Policies	Applicability to Project	Project Consistency?
Policy GR-4.5 Public Disclosure of Potential Geothermal Resource Areas Existing owners and purchasers of property within or near potential geothermal areas should be advised of likely geothermal operations in the area by regularly updated maps available at the Lake County Community Development Department.	Implementation of this policy is the responsibility of the County. Given the presence of the Bottle Rock Power Plant and steam field since 1985, property owners and purchasers in the project vicinity are expected to be aware of likely geothermal operations.	Project would be consistent with this policy.
Policy GR-4.10 Local Supplies and Services The geothermal industry is encouraged to use local contractors and services, and to purchase material, equipment, and supplies from in-County sources. The County should identify and support development of businesses and suppliers to the geothermal industry.	The project would allow an incremental expansion of existing geothermal operations that currently utilize local supplies and services.	Project would be consistent with this policy.
11.2 Water Quality		
Policy WR-2.1 Protect Surface & Groundwater Quality All proposed land use and development plans should be evaluated as to their potential to create surface and groundwater contamination hazards from point and non-point sources. Effects include, but are not limited to: soil erosion; direct discharge of potentially harmful substances; ground leaching from storage of raw materials, petroleum products, or wastes; floating debris by runoff from the site.	The project's design, construction, and operations would be subject to County permit standards and conditions to protect surface and groundwater quality. This would include compliance with all provisions of the Lake County Grading Ordinance and the Stormwater Ordinance.	Project would be consistent with this policy with incorporation of recommended mitigation measures.
Policy WR-2.3 Construction Site Sediment Control The County shall continue to enforce provisions to control erosion and sediment from construction sites.	The project's design, construction, and operations would be subject to County permit standards and conditions to control erosion and sedimentation. This would include compliance with all provisions of the Lake County Grading Ordinance and the Stormwater Ordinance.	Project would be consistent with this policy with incorporation of recommended mitigation measures.

General Plan Policies	Applicability to Project	Project Consistency?
Policy WR-2.4 Best Management Practices The County shall continue to require the use of feasible and practical best management practices (BMPs) to protect surface water and groundwater from the adverse effects of construction activities and urban runoff.	The project's construction would be subject to County permit standards and conditions to protect surface and groundwater quality. This would include compliance with all provisions of the Lake County Grading Ordinance and the Stormwater Ordinance.	Project would be consistent with this policy with incorporation of recommended mitigation measures.

Sources: Criterion Planning, AECOM, and Lake County, 2010.

Exhibit 5.1-7
Applicability of Lake County Zoning Ordinance Regulations

Zoning Ordinance Provision	***Applicability to Project***
ARTICLE 7	
SEC 21-7. REGULATIONS FOR THE RURAL LANDS OR "RL" DISTRICT	
7.1 Purpose: To provide for resource related and residential uses of the County's undeveloped lands that are remote and often characterized by steep topography, fire hazards, and limited access.	Project requests zone change to RL from PDR on portions of three of six parcels in project boundary.
7.2 Performance Standards: All uses permitted within this district shall be subject to the performance standards set forth in Article 41.	See Article 41 provisions below.
7.5 Uses permitted subject to first obtaining a Major Use Permit in each case: (h) Those uses permitted in the "RL" district with a Major Use Permit in Table B, Article 27.	See 27.11 Table B(o) and (ac) below.
27.11 Table B(o) Geo-Field Development Project	Proposed well pads, wells, steam collection, and injection pipelines.
27.11 Table B(ac) Road Building 27.11 Table B(o) Geo-Field Development Project 27.13(0) (o) Geo-field development project A geothermal field development well(s) shall not be drilled within one-half (1/2) mile of any populated area (defined as more than ten (10) dwelling units established within a one-quarter (1/4) mile diameter area) or a recorded major subdivision (defined as five (5) or more lots less than twenty (20) acres in size), without the written consent of at least seventy-five (75) percent of the property owners. The surface location of a geothermal field development well(s) shall not be located within that area indicated by Geothermal Setback Area- Map A (Sec. 21-27.11.1). A field development well(s) shall be limited to a parcel or contiguous parcels of not less than twenty (20) acres.	Proposed well pad access roads. Requires Major Use Permit The proposed well pads are more than one-quarter mile from ten homes. There are two homes in the project vicinity. The project is not within the Geothermal Setback Area. The parcel is larger than 20 acres.
SEC. 21-7.10. DEVELOPMENT STANDARDS	
7.17 Parking: The following minimum parking requirements shall apply except as provided in Article 46.	See 46.5.c below.
(b) Other uses: As provided for in Article 46. (Ord. No. 2128, 1/14/1993;	See 46.5.c below.

Zoning Ordinance Provision	***Applicability to Project***
Ord. No. 2305, 10/19/1995)	
46.5(c) Required Number of Spaces, Industrial Uses, General	Minimum parking requirements.
ARTICLE 37	
SEC. 21-37 REGULATIONS FOR THE WATERWAY OR "WW" COMBINING DISTRICT	
37.1 Purpose: To preserve, protect and restore significant riparian systems, streams and their riparian, aquatic and woodland habitats; protect water quality; control erosion, sedimentation and runoff; and protect the public health and safety by minimizing dangers due to floods and earth slides. These purposes are to be accomplished by setting forth regulations to limit development activities in significant riparian corridors and through the establishment of an administrative procedure for the granting of exceptions from such regulations.	Five of six parcels within the project boundary have a WW designation because of the presence of High Valley Creek. Project would be consistent with this provision with incorporation of recommended mitigation measures.
Within the "WW" Waterway combining district, all uses of land shall comply with the regulations of the base zoning district and with the additional regulations of the "WW" combining district.	Five of six parcels within the project boundary are subject to WW requirements.
37.3 Definitions:	
(a) Development activities: Development activities shall include, but are not limited to: 1. Grading and dredging: Excavating or filling or a combination thereof including gravel extraction. 2. Clearing: The removal of vegetation down to bare soil. 3. Building: The construction or alteration of any structure or part thereof, such as to require a building permit. 4. Tree and shrub removal: The topping or felling of any standing vegetation four (4) or more inches in diameter at three (3) feet in height. 5. The deposition of refuse or debris.	Five of six parcels within the project boundary are subject to WW requirements.

Zoning Ordinance Provision	***Applicability to Project***
(b) Riparian corridor: Those areas which fall into any of the following four categories: 1. Perennial streams: An area extending outward thirty (30) feet from the top of the streambank. 2. Intermittent streams: An area extending outward twenty (20) feet from the top of the streambank. 3. An area extending outward twenty (20) feet from the high water mark of an adjacent area of wetlands or natural body of standing water; or 4. An adjacent area of riparian vegetation. The boundary shall be defined as the outer limit of the occurrence of riparian vegetation and may extend farther than the above specified distances. This boundary may be determined by the Planning Director or Zoning Administrator.	Five of six parcels within the project boundary are subject to WW requirements. Project would be consistent with this provision.
37.4 Uses permitted: (a) All uses permitted in the base zoning district; however, no person shall undertake any development activity within a riparian corridor except when: 1. The development activity is exempt from the provisions of this Article pursuant to Section 37.5; or 2. The development activity has been authorized by an exception or conditional exception pursuant to Section 37.6 of this Article.	Five of six parcels within the project boundary are subject to WW requirements. Project would be consistent with this provision.

Zoning Ordinance Provision	***Applicability to Project***
37.6 Exceptions: Exceptions and conditional exceptions to the provisions of this Article may be authorized by the Zoning Administrator. (a) The granting of an exception may be conditioned by the requirement of measures to ensure compliance with the purposes of this Article. Required measures may include, but are not limited to: 1. Maintenance of a protective strip of vegetation between the development and a stream, marsh, or body of standing water. The strip should have sufficient filter capacity to prevent significant degradation of water quality, and sufficient width to provide value for wildlife habitat, as determined by the Zoning Administrator. 2. Installation and maintenance of waterbreaks. 3. Surface treatment to prevent erosion or slope instabilities. 4. Installation and maintenance of drainage facilities. 5. Seeding or planting of bare soil including the establishment of ground cover or the planting of woody vegetation. 6. Installation and maintenance of sediment catch basins. (b) Concurrent processing of related permits: An application for exception may be processed concurrently with an application for a permit required for the development activity in question. The Review Authority responsible for issuance of the required permit may also authorize an exception, pursuant to the requirements of this Article. No permit for the activities in question shall be issued until an exception has been authorized. Any permit must include any conditions included in the exception.	Five of six parcels within the project boundary are subject to WW requirements. Project would be consistent with this provision.
ARTICLE 41	
SEC. 21-41 PERFORMANCE STANDARDS	
41.1 Purpose: To establish performance standards to promote compatibility among various uses of land; protect and enhance the rural-resort character of the County; protect the health, safety, or welfare of the community; and control noise, dust, odor, smoke, vibration, danger to life and property, or similar causes likely to create a public nuisance. All uses permitted in Chapter 21 of the Lake County Code shall comply with all applicable performance standards of the base zoning district, combining district, and as set forth herein, except as provided in Section 41.3.	Proposed design, construction, and operation of project facilities.

Zoning Ordinance Provision	***Applicability to Project***
41.2 Compliance procedures: (a) The Planning Director may require pertinent information demonstrating that the proposed use will comply with all applicable performance standards prior to issuance of any ministerial or discretionary approval. This information may consist of a report prepared by a qualified technical consultant(s).	Proposed design, construction, and operation of project facilities. Project would be consistent with this provision.
41.3 Exceptions: (a) Uses which are not in compliance with all applicable performance standards at the time of zoning clearance shall require a use permit. The Planning Director shall determine whether a Minor or Major Use Permit is required based on the specific characteristics of the proposed use in relationship to the applicable performance standard(s). A Major Use Permit shall be required when the performance characteristics of the proposed use: 1. Have the potential to significantly impact the environment; or 2. Have the potential to create substantial public controversy; or 3. Have the potential to injure the public health, safety or welfare. (c) The performance standards contained in the following Subsections are the required minimum. They shall not be construed as preventing the Review Authority, as part of any discretionary approval, to require more restrictive standards as deemed necessary.	Proposed design, construction, and operation of project facilities. Project would be consistent with this provision.
41.4 Air quality: All uses shall comply with applicable local, state, and federal laws and regulations regarding contaminants and pollutants. This requirement includes, but is not limited to, emissions of suspended particulates, carbon monoxide, hydrocarbons, odors, toxic or obnoxious gases and fumes.	Proposed design, construction, and operation of project facilities. Project would be consistent with this provision with incorporation of mitigation measures.

Zoning Ordinance Provision	***Applicability to Project***
41.6 Erosion control: The following erosion control standards shall apply to all development projects in commercial or industrial zoning districts: (a) The smallest practical area of land shall be exposed at any one time during development. (b) When land is exposed during development, the exposure shall be kept to the shortest practical period of time. (c) Natural features such as trees, groves, natural terrain, waterways, and other similar resources shall be preserved where feasible. (d) Temporary vegetation and/or mulching shall be used to protect critical areas exposed during development. (e) The permanent final vegetation and structures shall be installed as soon as practical in the development. (f) Wherever feasible the development shall be fitted to the topography and soils to create the least erosion potential. (g) Provisions shall be made to effectively accommodate the increased runoff caused by changed soil and surface conditions during and after development. (h) Sediment basins (debris basins, desilting basins, or silt traps) shall be installed and maintained to remove sediment from runoff waters from land undergoing development where needed.	Proposed design and construction of project facilities. Project would be consistent with this provision with incorporation of mitigation measures.
41.7 Fire and explosion hazards: All uses involving the use or storage of combustible, explosive, caustic or otherwise hazardous materials shall comply with all applicable local, State and federal safety standards and shall be provided with adequate safety devices against the hazard of fire and explosion, and adequate fire-fighting and fire suppression equipment.	Proposed design, construction, and operation of project facilities. Project would be consistent with this provision with incorporation of mitigation measures.
41.8 Glare and heat: (a) All exterior lighting accessories to any use shall be hooded, shielded or opaque. No unobstructed beam of light shall be directed beyond any exterior lot line. Buildings and structures under construction are exempt from this provision.	Proposed design, construction, and operation of project facilities. Project would be consistent with this provision with incorporation of mitigation measures.

Zoning Ordinance Provision	***Applicability to Project***
41.9 Landscaping standards: (a) General: All undeveloped land areas shall be maintained in permanent vegetative cover, or alternatively be landscaped with a combination of materials to control runoff. All yards shall be landscaped such that there shall be no accumulation of silt, mud, or standing water causing unsightly or hazardous conditions, either within the yard or on adjacent properties, public roads, or sidewalks. 3. When abutting any residential district side yard: i. The side of the lot shall be landscaped with a minimum of a five (5) foot wide planted area but not so as to obstruct traffic or reduce sight distance at any driveway or intersection; or ii. A six (6) foot high wooden fence or masonry wall shall be constructed at the side lot line(s), but shall not exceed four (4) feet in height within any required front yard. 4. When abutting any residential district rear yard: i. The rear of the lot shall be landscaped with a minimum of a five (5) foot wide planted area when abutting any residential use or district; or ii. A six (6) foot high wooden fence or masonry wall shall be constructed at the rear lot line. 7. Existing or indigenous plant materials that meet the requirements of this section may be counted as contributing to the total landscaping required when located within the proposed use area.	Proposed design, construction, and operation of project facilities. Project borders residential properties zoned RL. Native vegetation would remain adjacent to neighboring parcels and outside of the project area, Project would be consistent with this provision.
41.10 Liquid, solid and hazardous wastes: (a) All uses are prohibited from discharging liquid, solid, toxic or hazardous wastes onto or into the ground and into streams, lakes or rivers. Discharge into a public or private waste disposal system in compliance with applicable local, state, and federal laws and regulations is permitted. (c) The handling and storage of hazardous materials, the discharge of hazardous materials into the air and water; and disposal of hazardous waste in connection with all uses shall be in conformance with all applicable local, state and federal regulations. (e) The disposal or dumping of solid waste accessory to any use, including, but not limited to, slag, paper and fiber wastes, or other industrial wastes shall be in compliance with applicable local, state, and federal laws and regulations.	Proposed design, construction, and operation of project facilities. Project would be consistent with this provision with incorporation of mitigation measures.

<table>
<tr><th>Zoning Ordinance Provision</th><th>Applicability to Project</th></tr>
<tr><td>41.11 Noise: Maximum sound emissions for any use shall not exceed equivalent sound pressure levels in decibels, A-Weighted Scale, for any one

(1) hour as stipulated in Table 11.1. These maximums are applicable beyond any property lines of the property containing the noise. (Note: Equivalent sound pressure level (Leq) is a measure of the sound level for any one (1) hour. It is the energy average of all the various sounds emitted from the source during the hour. A- Weighted Scale is used to adjust sound measurements to simulate the sensitivity of the human ear.)

Table 11.1 Maximum one-hour equivalent sound pressure levels (A-Weighted - dBA).
<table>
<tr><th rowspan="2">Time of Day</th><th colspan="3">Receiving Property Zoning District</th></tr>
<tr><th>Residential*</th><th>Commercial</th><th>Industrial</th></tr>
<tr><td>7 am - 10 pm</td><td>55</td><td>60</td><td>65</td></tr>
<tr><td>10 pm - 7 am</td><td>45</td><td>55</td><td>60</td></tr>
</table>
*Note: The Residential category also includes all agricultural and resource zoning districts.

Table 11.2 Maximum one-hour equivalent sound pressure levels (A-Weighted - dBA).
<table>
<tr><th>Time of Day</th><th>Level</th></tr>
<tr><td>7 am - 10 pm</td><td>57</td></tr>
<tr><td>10 pm - 7 am</td><td>50</td></tr>
</table>
(b) Noises of short duration: For noises of short duration or impulsive character, such as hammering, maximum one-hour sound pressure levels permitted beyond the property of origin shall be seven decibels less than those listed in Table 11.2 above.</td><td>Proposed design, construction, and operation of project facilities.

Project would be consistent with this provision with incorporation of mitigation measures.</td></tr>
</table>

<table>
<tr><th>Zoning Ordinance Provision</th><th>Applicability to Project</th></tr>
<tr><td>(c) Noises of unusual periodic character: For noises of unusual periodic character, such as humming, screeching, and pure tones, the median octave band sound pressure levels as indicated in Table 11.3 shall not be exceeded beyond the property of origin when the receiving property is zoned residential or is occupied by a dwelling, hospital, school, library, or nursing home.
Table 11.3 Median octave band sound pressure levels.
<table>
<tr><th>Octave Band Center Frequency, Hz</th><th>7 am - 10 pm</th><th>10 pm - 7 am</th></tr>
<tr><td>31.5</td><td>68</td><td>65</td></tr>
<tr><td>63</td><td>65</td><td>62</td></tr>
<tr><td>25</td><td>61</td><td>56</td></tr>
<tr><td>250</td><td>55</td><td>50</td></tr>
<tr><td>500</td><td>52</td><td>46</td></tr>
<tr><td>1,000</td><td>49</td><td>43</td></tr>
<tr><td>2,000</td><td>46</td><td>40</td></tr>
<tr><td>4,000</td><td>43</td><td>37</td></tr>
<tr><td>8,000</td><td>40</td><td>34</td></tr>
</table></td><td>Proposed design, construction, and operation of project facilities.
Project would be consistent with this provision with incorporation of mitigation measures.</td></tr>
<tr><td>(e) Exemptions: Local noise standards set forth in this Section do not apply to the following situations and sources of noise provided standard, reasonable practices are being followed:
5. Construction site sounds between 7:00 am and 7:00 pm.
(f) Exceptions: Upon written application from the owner or operator of an industrial or commercial noise source, the Zoning Administrator or Planning Commission, as part of a use permit approval, may conditionally authorize exceptions to local noise emission standards in the following situations:
1. Infrequent noise.
2. Noise levels at or anywhere beyond the property lines of the property of origin when exceeded by an exempt noise, as listed in Section (e) above, in the same location.
3. If after applying Best Available Control Technology (BACT), a use existing prior to the effective date of this ordinance is unable to conform to the standards established by this section.</td><td>Proposed design, construction, and operation of project facilities.
Project would be consistent with this provision with incorporation of mitigation measures.</td></tr>
</table>

Zoning Ordinance Provision	Applicability to Project
ARTICLE 48	
SEC. 21-48 ZONING CLEARANCE PERMIT.	
48.1 Zoning clearance: A zoning clearance permit shall be required for all buildings and structures hereinafter erected, constructed, altered, repaired or moved within or into any district established by this Chapter, and for any use requiring a grading permit, building permit or any permit required in this Code, or for a change in the character of the use of land, within any district established by this Chapter. No building permit shall be issued until the zoning clearance permit portion thereof has been issued by the Planning Department and any other permit required by this chapter has been issued and become effective. The zoning clearance permit is a ministerial act. (Ord. No. 1974, 12/20/1990; Ord. 2224, 3/17/1994)	Zoning clearance permit required as part of project grading and building permits (subsequent to rezoning and Major Use Permit issuance).
48.2 Required submittals: A request for a zoning clearance shall be accompanied by plans showing the details of the proposed use to be made of the land or building, and any other information required by the Planning Department as provided in Article 55.	Proposed design, construction, and operation of project facilities.
48.3 Findings required for approval: The Planning Department shall issue a zoning clearance, which shall be effective upon issuance, if all of the following findings are made: (Ord. No. 2128, 1/14/1993) (a) The proposed use is a permitted use in the district where located and is consistent with the general plan. (b) The proposed use meets the performance and development standards of the district in which it is located. (c) The proposed use complies with the performance standards of Article 41. (d) Any other permit required for the proposed use by this Chapter has been issued and become effective. (e) That no violation of Chapters 5, 17, 21, 23, or 26 of the Lake County Code currently exists on the property, unless the purpose of the permit is to correct the violation, or the permit relates to a portion of the property which is sufficiently separate and apart from the portion of the property in violation so as not to be affected by the violation from a public health, safety or general welfare basis. (Ord. No. 2128, 1/14/1993)	Proposed design, construction, and operation of project facilities. Approved Major Use Permit. Violations of previous use permits have been or are in the regulatory process of being complied with.

Zoning Ordinance Provision	***Applicability to Project***
ARTICLE 51	
SEC. 2 1-51 MAJOR USE PERMIT	
51.1 Major Use Permit: Major Use Permits revocable, conditional and/or valid for a term period may be issued for any of the uses or purposes for which such permits are required or permitted by the terms of this Chapter. The Board of Supervisors or Planning Commission may impose such conditions as they deem necessary to secure the purposes of this Chapter and may require tangible guarantees or evidence that such conditions are being, or will be, complied with.	Proposed design, construction, and operation of project facilities.
51.2 Application: Application for a Major Use Permit shall be made in writing by the owner of the property; or lessee, purchaser in escrow or optionee with the written consent of the owner; or by a public utility company or other agency with the powers of eminent domain, on a form prescribed by the Planning Department. The application shall be accompanied by a fee in an amount to be set by the Board of Supervisors, and plans showing the details of the proposed use to be made of the land or building, and any other pertinent information required by the Planning Department as provided in Article 55. (Ord. No. 1749, 7/7/1988)	Application submitted July 2, 2009 (UP 09-01).

Zoning Ordinance Provision	***Applicability to Project***
51.4 Findings required for approval: (a) The Review Authority may only approve or conditionally approve a Major Use Permit if all of the following findings are made: 1. That the establishment, maintenance, or operation of the use applied for will not under the circumstances of the particular case, be detrimental to the health, safety, morals, comfort and general welfare of the persons residing or working in the neighborhood of such proposed use, or be detrimental to property and improvements in the neighborhood or the general welfare of the County. 2. That the site for the project is adequate in size, shape, location, and physical characteristics to accommodate the type of use and level of development proposed. 3. That the streets, highways and pedestrian facilities are reasonably adequate to safely accommodate the specific proposed use. (Ord. No. 2128, 1/14/1993) 4. That there are adequate public or private services, including but not limited to fire protection, water supply, sewage disposal, and police protection to serve the project. (Ord. No. 1749, 7/7/1988) 5. That the project is in conformance with the applicable provisions and policies of this Code, the General Plan and any approved zoning or land use plan. 6. That no violation of Chapters 5, 17, 21, 23 or 26 of the Lake County Code currently exists on the property, unless the purpose of the permit is to correct the violation, or the permit relates to a portion of the property which is sufficiently separate and apart from the portion of the property in violation so as not to be affected by the violation from a public health, safety or general welfare basis. (Ord. No. 2128, 1/14/1993)	Proposed design, construction, and operation of project facilities. Violations of previous use permit have been or are in the regulatory process of being complied with.

Zoning Ordinance Provision	***Applicability to Project***
ARTICLE 64	
SEC. 21-64 ENVIRONMENTAL PROTECTION	
64.1 General responsibilities: (a) The Board of Supervisors, as the body having general governmental powers in the County, hereby delegates to the Planning Commission or Zoning Administrator to the fullest extent permitted by state law the responsibility for preparing and certifying in their final form, all environmental documents for projects subject to County jurisdiction. The Board of Supervisors further delegates to the Planning Director the preliminary responsibility for certification of environmental documents for projects that a County Ordinance has authorized Planning Director approval. However, the Board of Supervisors may certify, recertify or otherwise modify any decision concerning the California Environmental Quality Act for a publicly initiated project. "Publicly initiated project" shall be defined as an activity proposed and directly undertaken by any public agency under the jurisdiction of the Board of Supervisors, including but not limited to public works construction and related activities, clearing or grading of lands, improvements to existing public structures, enactment and amendment of Zoning Ordinances, grants or subsidies, and the adoption of and amendment of local General Plans or elements thereof. (Ord. No. 1749, 7/7/1988)	Project EIR / EA is being prepared pursuant to Sec 21-64.
64.2 Environmental protection guidelines: The Board of Supervisors shall by resolution adopt Environmental Protection Guidelines which shall establish the procedures to be followed in making environmental considerations for all projects subject to County jurisdiction.	Project EIR/EA is being prepared pursuant to Sec 21-64 and the County-adopted environmental guidelines.

Sources: Criterion Planning, AECOM, and Lake County, 2010.

Exhibit 5.1-8
Applicability and Consistency with Cobb Mountain Area Plan Policies

Area Plan Element	***Applicability to Project***	***Project Consistency***
2.1 Major Planning Issues		
Natural Resource Issues:		
1. Erosion from poor road construction and maintenance practices and the need for revegetation programs following construction and development.	Project road design, construction, and maintenance are subject to County permit standards and conditions for erosion control and revegetation through the Grading and Stormwater Ordinances.	Project would be consistent with this policy with incorporation of mitigation measures.
3. Noise abatement programs in residential areas.	Project design, construction, and operations are subject to County permit standards and conditions for noise control.	Project would be consistent with this policy with incorporation of mitigation measures.
8. Monitoring, including seismic monitoring, and development of geothermal resources.	The project's natural resource impacts are part of the EIR/EA analysis, and project operations are subject to County permit conditions requiring environmental monitoring, including seismicity. The project sponsor is also participating on the County seismic monitoring advisory committee.	Project would be consistent with this policy with incorporation of enhancement measures.
Public Safety Issues:		
2. Surface water quality degradation of the area's creeks and waterways, including the long-term impacts of the geothermal industry on area water quality.	Construction and steam field operations in proximity to High Valley Creek. Any significant impacts to surface water quality would be mitigated.	Project would be consistent with this policy with incorporation of mitigation measures.

Area Plan Element	Applicability to Project	Project Consistency
Land Use and Circulation Issues:		
7. Potential land use conflicts between industrial or commercial uses versus residential or recreation uses.	The project would allow an incremental expansion of existing geothermal operations in the PGRA, where residential uses have been discouraged since 1989.	Project would be consistent with this policy with incorporation of mitigation measures.
Housing Issues:		
3. Housing for future construction cycles in the geothermal industry.	Housing needed for construction workers and expanded steam field operations would be supportable with local housing supply.	Project would be consistent with this policy.
Economic Development Issues:		
3. Role of geothermal and related commercial activities in the area.	The project would allow an incremental expansion of existing geothermal operations that would contribute to the local economy.	Project would be consistent with this policy.
3.6 Minerals		
Policies of the Lake County general plan urge the protection, management, and development of mineral resources. A major goal of these policies is to minimize land use conflicts between mineral extraction activities and other uses. The Geysers geothermal steam field, centered in the Mayacmas Mountains, is the dominant mineral resource found in the Cobb Mountain Area.	The project would allow an incremental expansion of existing geothermal operations in the PGRA, where residential uses have been discouraged since 1989.	Project would be consistent with this policy with incorporation of mitigation measures.
Over the long term, continued expansion of steam field and power plant facilities in lake County is expected to occur in the known vapor-dominated portion of the KGRA. As economics and energy demands make development increasingly feasible, geothermal power facilities can also be expected to occur in areas with unproved vapor-dominated reservoirs.	Bottle Rock Power Plant restarted in 2007 in response to market forces. The project would allow an incremental expansion of existing geothermal operations in the PGRA.	Project would be consistent with this policy.

Area Plan Element	***Applicability to Project***	***Project Consistency***
3.2c: Development should be focused in areas of low to moderate erosion potential where feasible.	Siting and construction of well pads and access roads. Any significant erosion impacts would be mitigated.	Project would be consistent with this provision with incorporation of mitigation measures.
Water Resources		
3.3c: Promote the cooperative study of current and future water needs of the geothermal industry. Geothermal water use and reservoir management practices shall be conducted in a comprehensive manner which does not adversely affect existing beneficial uses.	Steam field reservoir management practices of the geothermal industry are subject to BLM and DOGGR permit standards and conditions; and the project's operations are subject to County permit standards and conditions for water resources protection.	Project would be consistent with this provision with incorporation of mitigation measures.
3.10 NATURAL RESOURCES		
Soils and Slope		
3.2a: State-of-the-art erosion control programs should be utilized during and after construction of new subdivisions, roads, road realignments and other earth moving activities.	Project earth-moving, road design, construction, and maintenance are subject to County permit standards and conditions for erosion control.	Project would be consistent with this policy with incorporation of mitigation measures.
Minerals Objective		
3.6 To encourage utilization of mineral resources, including geothermal resources, in a manner which provides both short and long-term benefits to residents of the area.	The project would allow an incremental expansion of existing geothermal operations that would provide economic and fiscal benefits to local residents.	Project would be consistent with this policy.
Related Policies		
3.6a: Policies and programs which ensure that high temperature geothermal and residential uses are adequately separated should be promoted during the planning period.	Proposed expansion is proximate to residences. Any significant impacts to residences, including but not limited to noise, odor, and traffic, would be mitigated.	Project would be consistent with this policy with incorporation of mitigation measures.

Area Plan Element	Applicability to Project	Project Consistency
4.0 PUBIC SAFETY		
4.5 Water Quality Degradation of water quality from geothermal development in the Geysers has long been a local concern. Potential water quality impacts relate to soil erosion, spills and mishaps, and other releases of toxic or hazardous materials and chemicals into area watersheds. Geothermal-related soil erosion can lead to increased sedimentation and turbidity which effect fish and wildlife habitat. Erosion rates can be increased from the construction of roads, well pads, power plants, pipelines, and related facilities. Spills and mishaps have been a significant source of water quality degradation from power plant operations, well field construction and maintenance, and trucking accidents. Long term degradation of water quality may occur from dry acid deposition of power plant steam and other steam releases that lead to chemical alteration of soils affecting water quality.	Construction, steam field operations. Any significant impacts to water quality would be mitigated. Any significant impacts to soil, fish, and wildlife habitat, and water quality would be mitigated.	Project would be consistent with this policy with incorporation of mitigation measures.
4.6 Noise		
The Cobb Mountain Area encompasses a range of noise-sensitive land uses including resort and recreational uses, residential development, and retreats, all of which may potentially be affected by heavy industry in the Geysers geothermal area.	Construction, steam field operations. Any significant noise impacts would be mitigated.	Project would be consistent with this policy with incorporation of mitigation measures.
Geologic and Seismic Hazards Policies		
4.3c: Geotechnical studies shall be required of development projects in areas determined to have an existing or potential slide problem. Such studies shall be prepared by a certified engineering geologist or other qualified professional and provide sufficient information to determine the extent of any slide problem and the scope of mitigations to be included in the project.	The project's design and construction are subject to County permit standards and conditions for geotechnical studies in slide areas.	Project would be consistent with this policy with incorporation of mitigation measures.

Area Plan Element	Applicability to Project	Project Consistency
Air Quality Policies		
4.4a: Land use patterns shall be promoted which reduce air quality problems related to local geography, terrain and air flow patterns.	The project would allow an incremental expansion of existing geothermal operations in the PGRA, where residential uses have been discouraged since 1989.	Project would be consistent with this policy with incorporation of mitigation measures.
4.4b: Industrial and commercial activities that have the potential to emit toxic, hazardous or nuisance air contaminants shall be located at safe distances and orientation from residential areas, schools, health care facilities, parks and other sensitive receptors. Furthermore, these activities shall be located in areas which are most conductive to avoiding limited dispersion and direct transport or emitted materials. Such sources shall be required to use Best Available Control Technology (BACT) to control emissions. Toxic or hazardous air contaminants include any chemical constituent regulated by state or federal air quality standards or any chemical constituent listed for review and study by the U.S. EPA or California Air Resources Board.	The project design and operations are subject to County permit standards and conditions for air pollutants and contaminant control.	Project would be consistent with this policy with incorporation of mitigation measures.
Water Quality Policies		
4.5d: General plan amendments, zoning changes and use permit conditions shall consider surface and groundwater management strategies that provide adequate long-term protection for water quality and supply.	The project design, construction, and operations are subject to county permit standards and conditions for water quality protection.	Project would be consistent with this policy with incorporation of mitigation measures.
4.5e: Long-term beneficial uses of water shall be balanced and protected, including water quality maintenance concerns.	The project design, construction, and operations are subject to County permit standards and conditions for water quality protection.	Project would be consistent with this policy with incorporation of mitigation measures.

Area Plan Element	***Applicability to Project***	***Project Consistency***
Noise Policies		
4.6c: Best available control technology (BACT) shall be applied to geothermal or other noise generating projects in noise sensitive areas or wherever noise generation may result in levels capable of creating a nuisance.	Construction, steam field operations. The project design, construction, and operations are subject to County permit standards and conditions for noise control.	Project would be consistent with this policy with incorporation of mitigation measures.
5.0 COMMUNITY DEVELOPMENT		
5.1 Land Use		
Geothermal Land Uses: While the general plan does not limit geothermal development to specific land use designations, regulation of geothermal energy activities occurs through case by case review, detailed use permit conditions, and performance standards. Important land use standards affecting geothermal energy development include the requirement that most geothermal wells be located one-half mile from residential areas. Geothermal activities are also typically required to provide a minimum 500 foot setback from "blue line" streams and water bodies found on U.S.G.S. topographic maps. Buffers between other sensitive resource areas, such as those identified in this plan, are also required.	Siting, design, construction, and operation of proposed well pads, wells, access roads, and new/reconstructed steam pipeline to the power plant. The project would allow incremental expansion of existing geothermal operations, subject to County permit standards and conditions for land use compatibility.	Project would be consistent with this policy with incorporation of mitigation measures.
Future Land Use Planning: Rural locations in the proximity of existing or future geothermal steam development should be developed for residential uses only after the utmost care has been taken to reduce potential geothermal residential conflicts.	The project would allow incremental expansion of existing geothermal operations in the PGRA, where residential uses have been discouraged since 1989.	Project would be consistent with this policy with incorporation of mitigation measures.

Area Plan Element	Applicability to Project	Project Consistency
Geothermal Development Areas: The proximity of geothermal development to local domestic water sources and supplies is also a long-term concern. The critical issue is how best to assure that present and future geothermal activities will not adversely affect water supplies or quality needed for other beneficial uses, including residential, commercial, and downstream uses such as agriculture. On-going water monitoring addressing both supply and quality issues in the Geysers region is needed to determine how water should be allocated and protected over the long-term. Geothermal-related water issues generally include: • Surface and groundwater management strategies that should be implemented to protect water supply and quality. • The maintenance of all beneficial uses of water.	The project is proximate to residences. The project design, construction, and operations are subject to County permit standards and conditions for water supply/quality protection and for protection of beneficial water uses.	Project would be consistent with this policy with incorporation of mitigation measures.
5.6 COMMUNITY DEVELOPMENT POLICIES		
Land Use Policies		
5.1a: Existing development patterns should be recognized to logically provide for future development in the area.	Incremental expansion of existing geothermal land use pattern. The project would allow an incremental expansion of geothermal operations in the PGRA, where residential uses have been discouraged since 1989.	Project would be consistent with this policy.
5.1e: Heavy commercial, light industrial, and geothermal service uses should be located at suitable sites which do not present the potential for creating incompatible uses, such as next to existing or planned residential and retail commercial uses.	The project would allow an incremental expansion of geothermal operations in the PGRA, where residential uses have been discouraged since 1989.	Project would be consistent with this policy.

Area Plan Element	***Applicability to Project***	***Project Consistency***
Land Use Objective		
5.5: To promote geothermal development which minimizes environmental and land use conflicts and maximizes local benefits to the economy.	Any significant environmental impacts would be mitigated; the project would be an expansion of existing operations that benefit the local economy.	Project would be consistent with this policy with incorporation of mitigation measures.
Related Policies		
5.5a: High-temperature resource operations shall be encouraged in promising geothermal resource areas and discouraged in populated, natural and critical resource conservation areas as defined in applicable plans and ordinances.	The project would allow an incremental expansion of geothermal operations in the PGRA, where residential uses have been discouraged since 1989. The project site is not located within a designated natural resource area.	Project would be consistent with this policy.
5.5b: Residential, commercial, or resort encroachment shall be discouraged in the primary geothermal resource area by use of resource-related zoning districts such as rural lands, timber preserve or open space along with a B-Frozen combining district.	The project is requesting a zone change from PDR to RL for expansion of existing geothermal operations, consistent with the property's current General Plan designation of RL.	Project would be consistent with this policy.
5.5c: Purchasers of property within or adjacent to high-temperature steam fields should be advised of likely geothermal operations in the area by regularly updated maps available at the Lake County Planning Department as well as by consumer disclosure requirements of the agent or seller of real property.	Implementation of this policy is a County responsibility. Given the presence of geothermal operations in the area since the 1980s, property owners and purchasers should be aware of steam field operations.	Project would be consistent with this policy.
5.5d: Geothermal development located within the boundaries of the primary geothermal resource area shall be subject to the same level of environmental review, mitigation, and compliance monitoring as elsewhere in the planning area.	Project is located in the PGRA. CEQA process being applied to the project is a standard process used County-wide.	Project would be consistent with this policy.

Area Plan Element	Applicability to Project	Project Consistency
Public Services		
Domestic Water Policies		
5.9f: Geothermal activities shall not adversely affect any water supplies for residential, commercial, agricultural or other beneficial uses downstream.	The project design, construction, and operations are subject to County permit standards and conditions for protection of residential water supplies and beneficial water uses.	Project would be consistent with this policy with incorporation of mitigation measures.
6.0 LAND USE AND ZONING PLAN		
6.2 Rural Area Land Use and Zoning Zoning in Primary Geothermal Resource Areas: About 46 percent of the acreage designated for rural lands and nearly all designated public lands in the Cobb Mountain Area are within the Geothermal Resource and Transmission Element's (GRTE) primary geothermal resource area (PGRA). The PGRA is where geothermal development is already taking place, and where residential and commercial development should be discouraged because of incompatibilities with high-temperature geothermal activities. The remainder of the planning area is considered to be in a secondary geothermal resource area where new projects are to be evaluated on a case-by-case basis.	The project would allow an incremental expansion of existing geothermal operations in the PGRA. Residential development has been discouraged in the PGRA since 1989 because of the land use incompatibilities described in the policy.	Project would be consistent with this policy with incorporation of mitigation measures.

Sources: Criterion Planning, AECOM, and Lake County, 2010.

Exhibit 5.1-9
Applicability of Big Valley Groundwater Management Plan Provisions

Plan Provision	***Applicability to Project***
Control of Saline Water Intrusion	
Saline groundwater intrusion in the classic sense does not occur in Big Valley. However, the intrusion of geothermal waters containing iron and boron has been inferred in studies as early as 1958. Elevated levels of iron and boron have been noted at greater depths and adjacent to inferred faults that underlie the aquifer. Boron and iron levels also tend to be higher in the fall, when groundwater levels are lower. The "hot" well during the 1976-77 drought along Merritt Road also shows the infusion of geothermal water during periods of low groundwater levels.	Geothermal wells and steam field operations have potential connection to groundwater quality; the project site is located adjacent to High Valley Creek in the headwaters of the Big Valley watershed.
Maintenance of higher groundwater levels would be beneficial to maintaining higher groundwater quality within the aquifer.	Bottle Rock Power Plant has assumed original DWR mitigation responsibility for groundwater quantity/quality measures.
Replenishment of Groundwater Extracted by Water Producers	
To preserve the groundwater quality from geothermal water intrusion, reduce overdraft conditions and prevent additional subsidence, groundwater use must be reduced and/or natural levels of groundwater recharge must be protected, enhanced and/or supplemented.	Potential mitigation responsibility for groundwater recharge. Project would be consistent with this policy with incorporation of mitigation measures.
The primary recharge areas for the Kelseyville Basin and the Adobe Creek - Manning Creek Basin are the creek beds of Kelsey, Adobe, and Manning Creeks. The creek beds must be protected to maintain and managed to optimize their recharge capabilities.	Project construction and operations would be adjacent to High Valley Creek, which discharges to Kelsey Creek. Project would be consistent with this policy with incorporation of mitigation measures.

Plan Provision	***Applicability to Project***
The Kelsey Creek Detention Structure, constructed in 1987 with DWR funds, has been shown to supplement the groundwater supplies in the eastern half of the Kelseyville Basin. The structure was constructed to mitigate the channel lowering which occurred in the 1960s. By increasing the depth of water in the creek bed upstream of the structure, the groundwater recharge rate is increased during periods of when the structure is closed.	Bottle Rock responsibility for DWR mitigation measures was raised by the Big Valley Groundwater Management Zone Commission on October 2, 2009, and by the Board of Supervisors on November 3 and December 1, 2009. However, the facility was constructed and maintained by DWR under a separate agreement between DWR and Lake County. This is not a requirement of BRP's existing Use Permit and a nexus to require BRP to contribute to a substantial portion or the entire amount for the maintenance of this facility is not apparent.
Review and Coordination of Land Use Issues	
In order to ensure land use decisions are consistent with this Plan:	
• District staff will provide comment to the planning agencies to implement the goals and policies of this Plan.	Lake County Watershed Protection District staff members have been contacted by the Community Development Department.
• Major projects will be brought to the attention of the Big Valley Groundwater Management Zone Commission for consideration.	The Groundwater Commission is aware of the project, per its October 2, 2009 action.
• The District will review and respond as a responsible agency for issues directly related to water use that affects the Big Valley Groundwater Basin.	Comments are expected from the Groundwater Commission/Watershed Protection District on the public draft of this EIR/EA.

Sources: Criterion Planning, AECOM, and Lake County, 2010.

Land Use, Population, and Housing – Significance Criteria

The land use analysis uses significance criteria from Appendix G of the *CEQA Guidelines*. According to these criteria, the project would have a significant land use impact if it would:

- Physically divide an established community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

The population and housing analysis also uses significance criteria from Appendix G of the *CEQA Guidelines*. According to these criteria, the project would have a significant population and housing impact if it would:

- Induce substantial growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure); [7]
- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; or
- Displace substantial numbers of existing people, necessitating the construction of replacement housing elsewhere.

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[7] A project is deemed to have growth-inducing impacts when it would facilitate or serve as a catalyst to growth that would not normally otherwise occur or would occur at a slower rate. Under CEQA, induced growth is not considered necessarily detrimental or beneficial (*CEQA Guidelines* Section 15126.2[d]). Induced growth is only significant if: a) the induced growth directly or indirectly may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects; or b) the induced growth, in some other way, could significantly affect the environment. Growth inducing impacts are further discussed in **Chapter 7.0 Impact Overview**.

Land Use, Population, and Housing – Impacts / Environmental Consequences and Mitigation Measures

NO IMPACTS

Based on analyses completed as a part of this EIR / EA, the proposed *BRP Steam Project* would have no impacts for the following significance criteria:

- *Conflict with any applicable habitat conservation plan or natural community conservation plan*.

  No habitat conservation plan or natural community conservation plan exists that is applicable to the project site. No impact would result.

- *Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere*.

  The proposed project would not displace any existing housing on the project site. No impact would result.

- *Displace substantial numbers of existing people, necessitating the construction of replacement housing elsewhere*.

  The proposed project would not displace any existing persons at the project site. No impact would result.

PROJECT CONSISTENCY WITH APPLICABLE PLANS AND POLICIES

Project Consistency with the Lake County General Plan

Geothermal development has occurred at the project site since 1980, consistent with general plan designations, and non-geothermal uses have been discouraged since 1989, when the PGRA was first adopted. The proposed project's consistency with applicable General Plan policies is presented in **Exhibit 5.1-6** and summarized below.

- *Land Use Compatibility*. Discouragement of non-geothermal uses in the PGRA, and protection of non-geothermal uses from adverse geothermal impacts.

  The project would expand existing geothermal facilities and operations that are located within the PGRA, which was adopted in 1989. Geothermal development is recognized as likely in the PGRA, and non-geothermal uses are discouraged to minimize potential conflicts. County policies also require that existing non-geothermal uses, such as residences, be protected from adverse geothermal impacts. The project would expand existing geothermal facilities and would not introduce non-geothermal uses to the site. The project would have potentially significant land use compatibility impacts related to traffic, air quality, and noise. These impacts are discussed in **Sections 5.2 Traffic and Circulation, 5.3 Air Quality,** and **5.4 Noise**. With implementation of mitigation measures identified in this EIR/EA, these impacts would be reduced to less-than-

significant levels, and the project would be consistent with land use compatibility policies of the General Plan.

- *Economic Development.* Encouragement of geothermal development that benefits the local economy.

  CEQA does not require a discussion of socioeconomic impacts, except if they could result in physical changes, and states that social or economic effects shall not be treated as significant effects (see CEQA Guidelines Sections 15064(f) and 15131). The project would generate 60 temporary jobs during construction as well as five new permanent jobs during project operation. Therefore the project would be consistent with economic development policies of the General Plan.

- *Transportation Adequacy and Safety*. Avoidance of residential areas by geothermal traffic.

  The project would use access routes that would pass near residences. As discussed in **Section 5.2 Traffic and Circulation,** the project would result in potentially significant traffic safety impacts that could be reduced to less-than-significant levels with mitigation measures. **Section 6.3 Alternative Access** provides an analysis of an alternative access route. With implementation of the mitigation measures identified in Section 5.2, these impacts would be reduced to less-than-significant levels, and the project would be consistent with traffic adequacy and safety policies of the General Plan.

- *Geothermal Resource Adequacy*. Adequate steam supplies to support intended power generation.

  Chapter 4.0 Geothermal Resources evaluates the adequacy of steam supply to support the intended power generation at the project site. The analysis concludes that the project sponsor could achieve the project objectives for power generation. Therefore, although the General Plan geothermal resources policies are applicable to new power plants only and the proposed project is intended to make the existing power plant operate more efficiently and profitably, the project would be consistent with General Plan geothermal resources policies.

- *Environmental Protection.* Standards for mitigating impacts to air quality, water quality, biological resources, cultural resources, light pollution, noise, earth-moving, seismicity, and emergency response.

  The project would have potentially significant impacts to air quality, water quality, biological resources, cultural resources, night sky illumination, noise, seismicity, and emergency response. With implementation of the mitigation measures identified for these impacts in **Chapter 5.0 Environmental Setting, Impacts, and Mitigation Measures**, these impacts would be reduced to less-than-significant levels, and the project would be consistent with environmental protection policies of the General Plan. However, as noted in **Section 5.5 Biological Resources,** the project would have a significant and unavoidable impact on serpentinite plants which could not be mitigated. [8] Therefore, the project would not be consistent with General Plan Policy OSC-1.1, which encourages protection of environmentally sensitive wildlife and plant life.

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[8] **Chapter 6.0 Alternatives** evaluates an alternate well pad location that would substantially avoid or reduce impacts to special-status plant species.

Project Consistency with the Lake County Zoning Ordinance

As stated in **Section 3.0 Description of the Proposed Project / Proposed Action**, the project sponsor has requested rezoning of the PDR area within the proposed project area to RL. The portion of the project area at present within the PDR zoning district is approximately 112 acres of the 450 acre lease on the Binkley property. The RL zoning designation for this project area would be consistent with the *Lake County General Plan* land use designation of RL. The proposed project includes a request to rezone 115 acres from PDR-BF to RL-BF. In concert with the rezoning request, the project sponsor has also applied for a Major Use Permit to allow geothermal field development and road construction on the project site. These are both conditionally allowable uses in the RL zone. With rezoning approval and Major Use Permit issuance, the project would be consistent with the provisions of the Zoning Ordinance. **Chapter 6.0 Alternatives** includes a discussion of an alternative project that would reduce the area needed to be rezoned to 60 acres.

Project Consistency with the Cobb Mountain Area Plan

The project would expand existing geothermal facilities and operations that are located within the PGRA, which was adopted in 1989. Geothermal development is recognized as likely in the PGRA, and non-geothermal uses are discouraged to minimize potential conflicts. However, existing residences are located in the project site vicinity. The project would have potentially significant land use compatibility impacts related to traffic, air quality, and noise. These impacts are discussed in **Sections 5.2 Traffic and Circulation, 5.3 Air Quality,** and **5.4 Noise**. With implementation of mitigation measures identified in this EIR/EA, these impacts would be reduced to less-than-significant levels, and the project would be consistent with land use compatibility policies of the CMAP.

The project would generate 60 temporary jobs during construction as well as five new permanent jobs during project operation. This would represent an incremental expansion of existing geothermal operations that would contribute to the local economy. Therefore, the project would be consistent with the economic development provisions of the CMAP.

The project would have potentially significant impacts to air quality, water quality, cultural resources, night sky illumination, noise, seismicity, and emergency response. With implementation of the mitigation measures identified for these impacts in **Chapter 5.0 Environmental Setting, Impacts, and Mitigation Measures**, these impacts would be reduced to less-than-significant levels, and the project would be consistent with the natural resources, water resources, and public safety provisions of the CMAP.

Project Consistency with the Big Valley Groundwater Management Plan

As stated in **Section 5.6 Hydrology and Water Quality**, groundwater pumping during the drilling phase of the project could have a substantial adverse effect on surrounding wells. With implementation of the mitigation measures identified in Section 5.6, this impact would be reduced to a less-than-significant level, and the project would be consistent with the provisions of the Big Valley Groundwater Management Plan.

IMPACT ANALYSIS

Impact 5.1-1 Land Use Conflicts

Although implementation of the project would not physically divide an established community, it would result in land use conflicts between the proposed geothermal development and existing residential uses. This would be a less-than-significant impact.

The project would expand existing geothermal facilities and operations at the Bottle Rock Power Plant and geothermal steam field, which is located within the PGRA. Geothermal development has occurred at the project site since 1980, consistent with General Plan designations, and non-geothermal uses have been discouraged since 1989, when the PGRA was first adopted. The proposed project would be located within the Francisco and BRP GeoResource Leaseholds, in an area that is primarily rural open space, and would not physically divide an established community.

However, project implementation would result in land use conflicts (e.g., traffic safety, odor emissions, noise, and visual impacts) between proposed development and existing residential uses during project construction and operation. The physical impacts are discussed in **Sections 5.2 Traffic and Circulation, 5.3 Air Quality and Climate Change, 5.4 Noise, and 5.11 Visual Resources**. With implementation of mitigation measures identified in the respective sections of this EIR / EA, these impacts would be reduced to less-than-significant levels. No additional mitigation would be required.

Mitigation Measure 5.1-1 None required.

Impact 5.1-2 Housing, Employment, and Population

Implementation of the proposed project would create new jobs and energy sources that could induce population growth in the area. This would be a less-than-significant impact.

The proposed project would not introduce new housing and would not result in a substantial housing need, as housing needs are expected to be negligible.[9] Thirty short-term construction jobs are expected to be taken by local residents who already have housing. In addition, 15 longer-term well-drilling jobs are expected to be filled by geothermal specialty crews from outside the area. The project would create five permanent operating jobs that are expected to be filled by local residents who already have housing. Therefore, housing demand, if any, would be readily accommodated by the area's lodging facilities and vacant housing supply.

The proposed project would have a beneficial, but minor, effect on local employment. The number of construction, drilling, and operating jobs associated with the proposed expanded Bottle Rock Power Plant is small in comparison to the local labor force. The 30 construction jobs are expected to be taken by local residents for a construction period of five months. Given the high unemployment in the county, these jobs are expected to be readily filled by local workers with the required construction experience. Fifteen well-drilling jobs are expected to be filled by geothermal specialty crews that travel regionally to drilling sites in the western U.S. Furthermore, five permanent operating jobs are expected to be filled by current residents from the local pool of workers with The Geysers experience. Therefore, new jobs would be readily filled by the area's stock of unemployed workers.

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9 *Bottle Rock Power LLC Petition to Amend,* California Energy Commission, 2009.

The proposed project would result in greater amounts of energy harnessed by PG&E. This newly available energy could be used to expand development within the northern and central California PG&E service areas. However, with PG&E's goal and efforts to diversify its energy portfolio, it is more likely that this renewable geothermal energy would replace existing non-renewable energy currently utilized by existing population within PG&E's service territory. Therefore, expansion of energy infrastructure (specifically, the geothermal facilities of the Bottle Rock Power Plant) would not induce substantial population growth in the area. Therefore, the project would have a less-than-significant impact associated with housing, employment, and population.

Mitigation Measure 5.1-2 None required.

5.2 TRAFFIC AND CIRCULATION

EXHIBIT 109

Due to file size limitations, this Exhibit is being provided on a disk. The selected portions of the Lake County Zoning Code identified by the Project Owner in its Direct Testimony can be found online using the following links:

Article 7, Section 21-7:
http://www.co.lake.ca.us/Assets/CDD/ZoningOrd/Zoning+Article+7.pdf

Article 27, Section 27.11:
http://www.co.lake.ca.us/Assets/CDD/ZoningOrd/Zoning+Article+27.pdf

Article 30, Section. 21-30:
http://www.co.lake.ca.us/Assets/CDD/ZoningOrd/Zoning+Article+30.pdf

Article 37, Section. 21-37:
http://www.co.lake.ca.us/Assets/CDD/ZoningOrd/Zoning+Article+37.pdf

Article 42, Section. 21-42:
http://www.co.lake.ca.us/Assets/CDD/ZoningOrd/Zoning+Article+42.pdf

Article 41, Section. 21-41:
http://www.co.lake.ca.us/Assets/CDD/ZoningOrd/Zoning+Article+41.pdf

ARTICLE 7

SEC 21-7. REGULATIONS FOR THE RURAL LANDS OR "RL" DISTRICT.

7.1 Purpose: To provide for resource related and residential uses of the County's undeveloped lands that are remote and often characterized by steep topography, fire hazards, and limited access. The following regulations shall apply in all "RL" districts.

7.2 Performance standards: All uses permitted within this district shall be subject to the performance standards set forth in Article 41.

7.3 Uses permitted:

(a) Prospecting, claiming, and preliminary geophysical investigations for natural resources including oil, gas, geothermal, or other mineral resources.

(b) Agricultural uses, including crop and tree farming, livestock grazing, animal husbandry, apiaries, aviaries, except those uses indicated in Sections 7.4 and 7.5.

(c) One (1) single-family dwelling or mobile home which shall be constructed according to the residential construction standards of Section 10.20.

(d) One (1) granny unit or one (1) residential second unit which shall be subject to the requirements of Section 27.3 (h), or Section 27.3 (m), respectively.

(e) Commercial worm farming.

(f) One (1) produce stand for the display and sale of agricultural products subject to the requirements of Section 27.3 (1).

(g) Agricultural processing such as fruit dehydrators and packing sheds not exceeding a use area of two thousand (2,000) square feet.

(h) Greenhouses, hothouses and incidental structures not exceeding a use area of ten thousand (10,000) square feet.

(i) Game preserves. **(Ord. No. 1897, 12/7/1989)**

(j) Farm labor quarters and one (1) guest house subject to the requirements of Section 27.3 (g), or Section 27.3 (i), respectively.

(k) Home occupations subject to the requirements of Section 27.3 (j).

(l) Agricultural and residential accessory uses and accessory structures; small kennels. **(Ord. No. 2128, 1/14/1993)**

(m) Those uses permitted in the "RL" district with a zoning permit in Table A, Article 27.

7.4 Uses permitted subject to first obtaining a Minor Use Permit in each case:

(a) Uses permitted in Section 7.3 when not in compliance with the performance standards set forth in Article 41.

(b) Commercial dairies, large and small animal veterinary clinics. **(Ord. No. 2947, 5/3/2011)**

(c) Private fishing and hunting clubs on parcel(s) containing not less than forty (40) acres; and commercial fishing and hunting clubs on parcel(s) containing not less than one hundred (100) acres. **(Ord. No. 1897, 12/7/1989)**

(d) Small wineries with an annual production capacity of fifteen thousand (15,000) cases or less, including an incidental retail sales area of up to seven hundred and fifty (750) square feet for wine produced and/or bottled on the premises; Wine tasting facilities with up to seven hundred and fifty (750) square feet of retail sales area on sites with a minimum of ten (10) acres of planted vineyards, with or without a small winery. Small wineries and tasting facilities may include winery and wine-related promotional events as defined in Section 68.4(s)17, non-promotional events as defined in Section 68.4(s)16. Non-promotional events shall be subject to Departmental review after one year of operation. **(Ord. No. 2947, 5/3/2011)**

(e) Agricultural processing such as fruit dehydrators, packing plants, canneries, polishing and packaging plants with a use area between two thousand (2,000) and ten thousand (10,000) square feet.

(f) Greenhouses, hothouses and incidental structures with a use area exceeding ten thousand (10,000) square feet.

(g) Wholesale nurseries with incidental retail sales; retail nurseries. **(Ord. No. 2172, 8/12/1993)**

(h) Commercial aquaculture.

(i) Large and commercial kennels; commercial stables or riding academies. **(Ord. No. 2128, 1/14/1993)**

(j) Display and sale of agricultural products, limited to one stand, exceeding six hundred (600) square feet in size per parcel. **(Ord. 1749, 7/7/1988)**

(k) Commercial wood yards.

(l) Agricultural service establishments primarily engaged in performing animal husbandry or horticultural services, including, but not limited to, blacksmiths, farriers, small equipment repair, irrigation services, custom meat cutting, and other ag-dependant uses which are of a similar character and not materially different to those uses listed above, with a total use area not exceeding five thousand (5,000)

square feet, including an incidental retail sales area not exceeding five hundred (500) square feet. **(Ord. No. 2947, 5/3/2011)**

(m) Uses which are minor additions or alterations to existing uses or structures permitted by Section 7.5, limited to an increase of twenty (20) percent of the use area or gross floor area of the structure(s).

(n) Those uses permitted in the "RL" district with a minor use permit in Table B, Article 27.

7.5 Uses permitted subject to first obtaining a Major Use Permit in each case:

(a) Uses permitted in Sections 7.3 and 7.4 when not in compliance with the performance standards set forth in Article 41.

(b) Cattle and hog feed yards, veal calf feeders, and animal sales yards.

(c) Large wineries with an annual production capacity exceeding fifteen thousand (15,000) cases including incidental retail sales of wine produced or bottled on the premises, which may include winery and wine-related promotional events as defined in Section 68.4(s)17, non-promotional events as defined in Section 68.4(s)16, and amplified outdoor public events as defined in Section 68.4(s)15. Non-promotional events and amplified outdoor public events shall be subject to Departmental review after one year of operation. **(Ord. No. 2947, 5/3/2011)**

(d) Agricultural processing such as fruit dehydrators, packing plants, canneries, polishing and packaging plants exceeding a use area of ten thousand (10,000) square feet.

(e) Private and public campgrounds, resorts or retreats. **(Ord. No. 2706, 01/06/2005)**

(f) Farm labor camps.

(g) Small wineries and wine tasting facilities as defined in Section 7.4(d) that include amplified outdoor public events as defined in Section 68.4(s)15. Amplified outdoor public events shall be subject to Departmental review after one year of operation. **(Ord. No. 2947, 5/3/2011)**

(h) Those uses permitted in the "RL" district with a major use permit in Table B, Article 27.

(i) Off-road vehicle course when developed on property consisting of at least 100 acres. Off-road vehicle courses shall not be located in mapped serpentine soils areas, and shall not be developed in areas containing more than 10 residences within 1,200 feet, as measured from the project area boundary. **(Ord. No. 2716, 02/03/2005)**

(j) Green waste composting facilities on parcels not less than 10 acres. **(Ord. No. 2947, 5/3/2011)**

7.11 Maximum permitted density: The number of lots which can be created from a parcel in this district shall be determined through Table 20. Unless modified by any "B" district, maximum permitted density is the sum of all values derived from Categories 1 through 4, but in no case shall the density exceed one (1) unit per twenty (20) acres. The maximum permitted density may be calculated based on the entire parcel or each proposed lot as long as all parcels conform to the density of Table 20. **(Ord. 1749, 7/7/1988; Ord. No. 2402, 7/12/1997)**

Table 20. Land Capacity/Capability

Category 1 AVERAGE CROSS SLOPE (%)	BASE DENSITY	Category 2 FUEL LOADING	Category 3 LANDSLIDE RISK	Category 4 DISTANCE
0-19	20	--	--	5
20-29	30	5	3	5
30-34	40	7	5	5
35 +	45	8	7	5

(Note: All numbers on the chart are in acres)

(a) Category 1: The average cross slope of the parcel shall be determined by plotting the parcel on the appropriate U.S.G.S. quad sheet or other topographical map with a reliable scale prepared by a registered civil engineer or surveyor. The combined length of the contour lines, in scale feet, will be measured within the plotted area. The average cross slope is calculated utilizing the following formula:

$$S = \frac{.0023(I)(L)}{A}$$

where:

S =	Average cross slope in percent
.0023 =	Converts square feet to acres
I =	Contour interval in feet
L =	The combined length of the contour lines in linear feet
A =	The gross area in acres of the parcel

The result of the above formula will be rounded down to the nearest whole percentage point.

(b) Category 2: The fuel loading for the parcel shall be determined using the Lake County General Plan Wildfire Hazard Map on file at the Lake County Planning Department or any updated map indicating fuel load and/or fire hazard as approved by the Planning Commission. The maximum density shall be adjusted according to the parcel's average cross slope and the corresponding line of Category 2 if the map indicates either a "high" or "extreme" rating for more than fifty (50) percent of the

parcel. Alternative data establishing fuel load and wildfire hazard may be prepared by a registered forester.

(c) Category 3: The landslide risk for the parcel shall be determined using the Lake County General Plan Landslide Risk Map on file at the Lake County Planning Department, or any updated map indicating geologic hazards and slope stability as approved by the Planning Commission. The maximum density shall be adjusted according to the parcel's average cross slope and corresponding line of Category 3 if the map indicates either an "unstable" or "existing unconsolidated to moderately consolidated landslide debris" rating for more than fifty (50) percent of the parcel. Alternative data establishing land stability may be prepared by a registered geologist with professional training in structural geology, or a certified engineering geologist.

(d) Category 4: The distance shall be measured in air miles between the edge of the parcel and the location, on the effective date of this Ordinance, of the fire station of the nearest community designated in the 1981 Lake County General Plan's Rural Lands policy and from the Hidden Valley substation of the South Lake Fire Protection District. The maximum density shall be adjusted according to Category 4 if the parcel is over five (5) air miles from a designated community. **(Ord. 1749, 7/7/1988; Ord. No. 2402, 7/12/1997)**

(e) The maximum permitted density shall be determined by adding any assigned values in Categories 1, 2, 3, or 4. To determine the number of lots which can be created, divide the parcel's gross acreage by the calculated maximum permitted density. The maximum permitted density may be calculated based on the entire parcel or each proposed lot as long as all parcels meet the minimum required density. **(Ord. No. 2402, 7/12/1997)**

(f) Alternative data sources may be substituted for data sources identified in Categories 1 through 4 above, subject to approval by the Planning Commission. **(Ord. No. 2402, 7/12/1997)**

(g) The Review Authority may increase the maximum permitted density permitted by Table 20 by up to fifty (50) percent when the Review Authority finds all of the following: **(Ord. 1749, 7/7/1988)**

1. Surrounding parcel sizes are substantially similar in size to those proposed.

2. All parcels to be created front on or will front on a publicly-maintained road, or all parcels front on or will front on a privately-maintained road where maintenance is insured by a homeowner's association(s) declaration of conditions, covenants and restrictions (CC&R's) or legal, binding road maintenance agreements across the subdivision site and to a county-maintained road.

3. All proposed parcels front on maintained roads without utilizing flag lot design.

4. The proposed density is not more than one (1) unit per twenty (20) acres.

5. The site is not adjacent to any "TPZ", "APZ", "A" or "AI" zoning district.

6. The site does not contain any area identified in the Lake County General Plan as "Wetlands Protected", Figure V-13; or "Natural Areas", Figure V-5; or "Critical Resource and Conservation Areas", Figure V-6.

7. The proposed density increase will not conflict with any specific policy or objective of the Lake County General Plan.

8. Any subdivision approval pursuant to this Subsection has been conditioned so that a building envelope(s) is located on each parcel meeting the following criteria:

   i. Is one (1) acre in size or larger.

   ii. Will accommodate a typical dwelling, access road, and leach field with one hundred (100) percent expansion area.

   iii. Has a cross slope of less than fifteen (15) percent.

   iv. Can be served by an access road or driveway of less than fifteen (15) percent grade.

   v. Is rated as low or moderate fire hazard.

   vi. Construction within the building envelope and along the access route will not adversely affect geological stability. **(Ord. 1749, 7/7/1988)**

7.12 Minimum lot size:

(a) Twenty (20) acres except when the conditions exist as set forth in Subsection (b).

(b) Minimum lot sizes of five (5) to twenty (20) acres may be approved when, as a result of physical features of the property, it is determined that adherence to the twenty (20) acre minimum parcel size would result in significant environmental impacts, or loss of agricultural efficiency, or physical separation of proposed parcels by physical features. Physical features may include, but are not limited to:

1. "Blue line" creeks as indicated on U.S.G.S. topographic maps; or

2. An existing publicly maintained road; or

3. A "ridge"; or

4. Prime soils, Classes I through IV, may be the basis for reduction in minimum lot size where a reduction would allow the retention of prime soils in a single agricultural unit.

(c) All subdivisions created pursuant to Section 7.12(b) shall include as a condition of approval rezoning to add a "B-Frozen", "B-4" or "B-5" district of Article 30 to insure that the permitted density of Section 7.11 is not exceeded.

7.13 Minimum average lot width:

(a) Parcels twenty (20) acres or less: Two hundred (200) feet.

(b) Parcels more than twenty (20) acres: Four hundred (400) feet.

7.14 Maximum length to width ratio:

(a) Parcels twenty (20) acres or less: Four (4) to one (1).

(b) Parcels more than twenty (20) acres: Five (5) to one (1).

7.15 Minimum yards:

(a) Front yard: Thirty (30) feet from lot line, or fifty-five (55) feet from centerline of roadway, whichever is greater. Yards abutting streets are front yards.

(b) Rear yard: Twenty-five (25) feet from lot line.

(c) Side yard: Fifteen (15) feet from lot line.

(d) Accessory uses: The above yards shall apply.

7.16 Maximum height:

(a) Principal structure: Thirty-five (35) feet.

(b) Accessory structure: Twenty (20) feet. **(Ord. 1749, 7/7/1988)**

(c) Agricultural accessory structures: Forty-five (45) feet. **(Ord. 1749, 7/7/1988)**

7.17 Parking: The following minimum parking requirements shall apply except as provided in Article 46.

(a) Residential use: two spaces.

(b) Other uses: As provided for in Article 46. **(Ord. No. 2128, 1/14/1993; Ord. No. 2305, 10/19/1995)**

7.18 Projects proposing four or fewer parcels less than 30 acres in size shall have access via an existing publicly maintained road or via a new road improved at a minimum with a processed gravel road consistent with county standards. **(Ord. No. 2402, 7/12/1997)**

7.19 Signs: As provided in Article 45.

7.20 Notice of farming practices: Shall be required as set forth in Section 4.18 for all single-family dwellings and farm labor quarters**. (Ord. 1749, 7/7/1988)**

7.21 Minimum residential construction standards: All single-family dwellings except "Temporary Dwellings" and "Farm Labor Quarters" shall meet the minimum residential construction standards of the "R1" district, Section 10.20.

7.22 DEVELOPMENT STANDARDS EXCEPTIONS: FOR EXCEPTIONS TO THE DEVELOPMENT STANDARDS OF THIS ARTICLE, SEE ARTICLE 42**. (Ord. 1749, 7/7/1988)**

ARTICLE 27

SEC. 21-27 USES GENERALLY PERMITTED.

27.1 Purpose: All uses listed in this Article and all matters related thereto, are declared to be uses possessing characteristics of unique and special form as to make their use acceptable in one or more districts upon issuance of a zoning permit, minor or major use permit in addition to any required building, grading or health permits. (**New Table A, Ord. No. 1749, 7/7/1988; Ord. No. 1820, 5/11/1989; Ord. No. 2536, 8/31/2000; Ord. No. 2594, 07/25/2002)**

27.2 Uses generally permitted with a zoning permit: Uses listed in Table A are permitted in the zoning districts indicated upon issuance of a zoning permit in the case of the symbol "λ" pursuant to the provisions of Section 27.3 and Article 49.

27.3 Conditions required of uses permitted by a zoning permit:

(a) Accessory residence to a commercial use:

1. The accessory residence shall be constructed concurrently with, or subsequent to the construction of the commercial building and shall be an accessory use to the principal commercial building or use in terms of duration or size.

2. A combination office, accessory residence, or an accessory residence utilized as an office may be located in the front one-half of the lot, subject to the development standards of the base district. **(Ord. No. 1749, 7/7/1988)**

3. If detached, the accessory residence shall be located on the rear one half (1/2) of the lot and at least ten (10) feet from any commercial building or dwelling on the same lot, or any adjacent lot. If attached, the accessory residence shall be to the rear of the principal commercial building or on a second or higher floor.

4. The accessory residence must be provided with a minimum of two hundred (200) square feet of usable private open space, in the form of enclosed yard, decks, or balconies, not including any required yard area.

5. Fire and vehicular access to the accessory residence of at least twelve (12) feet in width must be provided from a street or alley of a minimum width of twenty (20) feet.

6. The accessory residence must be provided with a separate means of ingress and egress to the ground outside of the building when the accessory residence is an integral part of a business structure.

7. The accessory residence shall comply with the development standards of the zoning district and the performance standards of Article 41

Section. 27.2 Table A. Uses Generally Permitted with a Zoning Permit

● -Zoning Permit Standards Included in Subsections 27.3(a) thru (x)

Special Uses	APZ	A	TPZ	RL	RR	SR	R1	R2	R3	C1	C2	C3	CR	CH	M1	M2	MP	PDR	PDC	O	W	U
(a) Accessory Residence [1, 4, 5]									●	●	●	●	●	●	●	●	●		●			
(b) Ag.- Family Dwelling [1]	●	●	●															●				
(c) Bed and Breakfast [3]	●	●		●	●	●	●	●	●				●	●				●				
(d) Christmas Tree Sales [1]	●	●	●	●	●					●	●	●		●	●			●	●			
(e) Dam or Reservoir, Small [1]	●	●	●	●	●	●						●	●	●	●	●	●	●	●	●		
Dam or Reservoir, Medium [1]	●	●	●																			
(f) Drop-off Recycling Center [1]											●	●		●	●	●						
(g) Farm Labor Quarters [1, 4]	●	●	●	●	●													●	●			●
(h) Granny Unit [1, 3, 8]				●	●	●	●	●										●				●
(i) Guest House [1, 2, 4, 8]	●	●	●	●	●	●	●											●				●
(j) Home Occupation [1, 6]	●		●	●	●	●	●	●										●				●
(k) Newspaper Distribution Center					●					●	●	●		●	●	●	●					
(l) Produce Stand [1, 5]	●	●	●	●	●	●												●	●	●		●
(m) Residential Second Unit [1]				●	●	●	●	●											●			●
(n) Rummage Sale, Non-Profit	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				●			●
(o) Special Outdoor Event, Non-Profit		●		●	●	●				●	●	●	●	●	●				●			
(p) Temporary Dwelling [1, 3, 5, 8]	●	●	●	●	●	●	●	●										●				●
(q) Temporary Office [1]										●	●	●	●	●	●	●	●		●			
(r) Temporary Construction Office [1]	●	●	●	●	●	●	●	●	●	●	●	●			●	●	●	●	●	●		●
(s) Temporary Sales Office [1]				●	●	●	●	●	●	●	●	●			●	●	●	●	●			●
(t) Wind Energy Conversion Systems[2]	●	●	●	●	●	●									●	●	●	●	●			●
(u)Temporary Sales From a Vehicle[1]	●	●		●						●	●	●		●								●
(v) Vendor's Permit [1]										●	●	●	●		●				●			●
(w) Wireless Communication Facilities, Temporary [7]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
(x) Farmers' Market[8]		●								●	●	●	●	●								

(1.Ord. No. 1749, 7/7/1988; 2. Ord. No. 1820, 05/11/1989; 3. Ord. No. 1897, 12/7/1989; 4. Ord. 1974, 12/20/1990; 5. Ord. No. 2128, 1/14/1993; 6. Ord. No. 2172, 08/12/1993; 7. Ord. No. 2594, 07/25/2002; 8. Ord. No. 2618, 02/27/2003; 8. Ord. No. 2947, 5/3/2011)

8. One (1) parking space shall be provided for the exclusive use of the accessory residence in addition to the parking requirements of the commercial building or use.

9. Accessory residences in the "R3", "C1", "C2", "CR", "CH" and "PDC" districts shall meet the minimum residential construction standards of the "R1" district, Section 10.20, except for foundations required in 10.20(c). Accessory residences in the "C3", "M1" and "M2" districts shall meet the minimum construction standards of the "MH" combining district, Section 32.11, except for foundations required in Section 32.11(c). **(Ord. No. 1974, 12/20/1990; Ord. No. 2128, 1/14/1993)**

(b) Agricultural family dwelling:

1. The agricultural family dwelling shall be incidental to the principal dwelling of the full-time operator in terms of size, and shall be located a distance not to exceed two hundred (200) feet from the main dwelling. Agricultural family dwellings may be located further than two hundred (200) feet from the main dwelling upon securing a minor use permit in each case. **(Ord. No. 1749, 7/7/1988)**

2. The parcel shall contain a minimum of forty (40) acres.

3. The agricultural family dwelling and any accessory structures shall comply with the development standards of the zoning district and the performance standards of Article 41.

4. The agricultural family dwelling shall not be leased, subleased, rented, or subrented to persons not directly involved in the agricultural operation.

5. One (1) parking space shall be provided for the exclusive use of the ag-family dwelling in addition to the parking requirements of the principal dwelling.

6. The provisions of this Subsection shall not apply to single-family dwellings or mobile homes established prior to the effective date of this ordinance. **(Ord. No. 1749, 7/7/1988)**

(c) Bed and breakfast:

1. A bed and breakfast shall contain no more than two (2) guest rooms used, designed or intended to be used, let or hired out for occupancy for one (1) or more guests.

2. Additions to an existing residence for the purpose of establishing a bed and breakfast shall be limited to fifteen (15) percent of the existing floor space of the residence.

3. Existing residences, new residences and any accessory structures shall comply with the development standards of the zoning district and the performance standards of Article 41.

4. The applicant shall comply with any fire and life safety requirements imposed by the County building official according to the Uniform Building Code and Uniform Fire Code.

5. A zoning permit for a bed and breakfast shall be valid for a period not to exceed five (5) years. Continuance of the use shall require reapplication for each successive five (5) year term. Such reapplication shall be filed with the Planning Department for approval prior to the date of zoning permit expiration.

6. Residential, commercial or agricultural accessory structures shall not be used for rental occupancy.

7. No cooking facilities shall be permitted in guest rooms and food service is limited to continental breakfasts served to guests only. No commercial or "Restaurant Act Kitchen" is permitted.

8. Signs shall be limited to one (1) three (3) square foot non-illuminated or indirectly illuminated attached or free-standing sign; except in the "R1" and "R2" districts, where signs shall be limited to one (1) two (2) square foot non-Illuminated attached or free-standing sign.

9. One (1) parking space per guestroom shall be provided for the exclusive use of the guests in addition to the parking requirements of the principal residence.

10. Bed and breakfasts in the "CR" and "CH" zoning districts not located in a dwelling unit existing prior to the effective date of this Ordinance shall be subject to all the provisions of Section 27.13(b). **(Ord. No. 1897, 12/7/1989)**

(d) Christmas tree sales:

1. Christmas tree sales including any accessory structures shall comply with the development standards of the zoning district.

2. No trees or advertising signs shall be displayed within the public right-of-way. Signs shall be subject to the provisions of Article 45.

3. High intensity lights of one thousand (1,000) watts or more used for night display shall be shielded or directed at the use area. **(Ord. No. 1749, 7/7/1988)**

4. There shall be an area reserved for loading and unloading of trees. Egress

and ingress shall be clearly marked.

5. There shall be a minimum of three (3) on-site parking spaces meeting the requirements of Article 46 provided for the exclusive use of the Christmas tree sales in addition to the parking requirements of the principal use or structure.

6. A zoning permit for Christmas tree sales shall only be valid between November 15 and January 2. Lots or parcels utilized for tree sales shall be cleared of such use by the date of permit expiration. Only one (1) sales permit per parcel per year is permitted. **(Ord. No. 1749, 7/7/1988)**

(e) Dam or reservoir, small: **(Ord. No. 1749, 7/7/1988)**

1. The proposed site of the small dam or reservoir shall not be identified on any U.S. Geological Survey map as a lake, marsh, or solid or broken "blue line" stream.

2. A small dam shall not exceed six (6) feet in height from the natural bed of the stream or watercourse at the downstream toe of the barrier; a small reservoir is larger than one (1) acre foot and shall not exceed five (5) acre feet.

3. All dams or reservoirs shall be accompanied by a plan approved by the U.S.D.A., Soil Conservation Service or prepared by a registered civil engineer, except as provided in Subsection 4 or 5 below.

4. Excavated or embankment ponds under one (1) acre foot in capacity or dams less than three (3) feet in height need not include engineered plans or water rights determination.

5. Excavated ponds less than five (5) acre feet when constructed totally below natural grade and off watercourses need not submit engineered plans.

6. All dams or reservoirs shall be accompanied by a 1601 or 1603 permit issued by the State Department of Fish and Game if located on a stream.

7. The applicant shall apply to the State Department of Water Resources, Division of Water Rights for water rights determination or permit, except as provided in Subsection 4 above. The permittee shall file with the Planning Department all applicable water rights determinations or permits prior to construction of dam. **(Ord. No. 1749, 7/7/1988)**

(e cont.) Dam or reservoir, medium: **(Ord. No. 1749, 7/7/1988)**

1. The proposed site of the medium dam or reservoir shall not be identified on any U.S. Geological Survey Map as a lake, marsh, or solid or broken "blue line" stream.

2. A medium dam shall not exceed fifteen (15) feet in height from the natural bed of the stream or watercourse at the downstream toe of the barrier; a medium reservoir shall not exceed fifteen (15) acre feet.

3. All applications for medium dams or reservoirs shall be accompanied by a detailed plan approved by the U.S.D.A., Soil Conservation Service or prepared by a registered civil engineer with assistance of a certified engineering geologist.

4. All applications for medium dams or reservoirs shall be accompanied by an approved 1601 of 1603 permit issued by the State Department of Fish and Game if located on a stream.

5. The applicant shall apply to the State Department of Water Resources, Division of Water Rights for water rights determination or permit. The permittee shall file with the Planning Department a favorable water rights determination or permit prior to issuance of grading or building permits for construction of a medium dam or reservoir.

(fa) Reverse vending machine: **(Ord. No. 1749, 7/7/1988)**

1. Reverse vending machines shall be an accessory use to a commercial or industrial district use.

2. Shall be located within thirty (30) feet of the entrance to the commercial structure and shall not obstruct pedestrian or vehicular circulation.

3. Shall not occupy parking spaces required by the primary use.

4. Shall occupy no more than fifty (50) square feet of floor space per installation, including any protective enclosure, and shall be no more than eight (8) feet in height.

5. Shall be constructed and maintained with durable waterproof and rustproof material.

6. Shall be clearly marked to identify the type of material to be deposited, operating instruction, and the identity and phone number of the operator or responsible person to call if the machine is inoperative.

7. Shall have a sign area of a maximum of four (4) square feet per machine, exclusive of operating instructions.

8. Shall be maintained in a clean, litter-free condition on a daily basis.

9. Operating hours shall be at least the operating hours of the host use.

10. Shall be illuminated to ensure comfortable and safe operation if operating hours are between dusk and dawn.

11. Reverse vending machines located within an existing commercial or industrial building do not require a zoning permit.

12. Reverse vending machines not meeting one or more of these conditions may be approved upon first securing a minor use permit in each case. **(Ord. No. 1749, 7/7/1988)**

(fb) Small recycling center: **(Ord. No. 1749, 7/7/1988)**

1. Small recycling facilities shall be an accessory use to a commercial or industrial district use and include bulk reverse vending machines and mobile recycling units.

2. Shall be no larger than five hundred (500) square feet and occupy no more than five (5) parking spaces not including space that will be periodically needed for removal of materials or exchange of containers.

3. Shall be set back at least ten (10) feet from any street line and shall not obstruct pedestrian or vehicular circulation.

4. Shall be limited to the collection in separate containers of the following: metals, glass, aluminum or bi-metal cans, plastic containers, newsprint, cardboard, paper bags, clothing and small household items.

5. Shall not collect large or bulky items such as furniture, building materials, large appliances, auto parts or similar items.

6. Shall use no power-driven processing equipment except for reverse vending machines.

7. Shall use containers that are constructed and maintained with durable waterproof and rustproof material, covered when site is not attended, secured from unauthorized entry or removal of material, shall be of a capacity sufficient to accommodate materials collected and collection schedule, and be maintained in good repair so as not to be hazardous to the public or visually offensive.

8. Shall store all recyclable material in containers or in the mobile unit vehicle, and shall not leave materials outside of containers when attendant is not present.

9. Shall be maintained free of litter and any other undesirable materials, and mobile facilities, at which truck or containers are removed at the end of each collection day, shall be swept at the end of each collection day.

10. Noise levels shall not exceed the noise levels of Section 21-41.11.

11. Attended facilities located within one hundred (100) feet of a property zoned or occupied for residential use shall operate only during the hours between 9:00 a.m. and 7:00 p.m.

12. Containers for the 24-hour donation of materials shall be at least one hundred (100) feet from any property zoned or occupied for residential use unless there is a recognized service corridor and acoustical shielding between the containers and the residential use.

13. Shall not be located in any required landscape, yard or setback area; nor be so located as to obstruct traffic or reduce sight distance at any driveway or intersection.

14. No additional parking spaces will be required for customers of a small collection facility located at the established parking lot of a host use. One (1) space will be provided for the attendant, if needed.

15. Occupation of parking spaces by the facility and by the attendant may not reduce available parking spaces below the minimum number required for the primary host use by more than three (3) spaces.

16. Containers shall be clearly marked to identify the type of material which may be deposited; the facility shall be clearly marked to identify the name and telephone number of the facility operator and the hours of operation, and display a notice stating that no material shall be left outside the recycling enclosure or containers.

17. Appurtenant signs, in addition to those required in condition 16, shall be limited to two (2) single-faced sixteen (16) square foot non-illuminated attached signs.

18. Small recycling centers not meeting one or more of these conditions may be approved upon first securing a minor use permit in each case **(Ord. No. 1749, 7/7/1988)**.

(g) Farm labor quarters:

1. One (1) mobile home or single-family dwelling meeting the minimum construction standards of Section 32.11 may be permitted for farm help employed principally on land owned by the owner of the building site for

each of the following agricultural uses conducted on the premises: **(Ord. No. 1749, 7/7/1988)**

i. Fifty (50) dairy or purebred cows or one hundred (100) beef cattle; or

ii. Twenty (20) acres of grapes, apples, pears, walnuts or prunes; or

iii. Twenty thousand (20,000) broiler chickens, fifteen thousand (15,000) egg-laying hens, or three thousand (3,000) turkeys; or

iv. Fifteen (15) brood mares; or

v. Wholesale nurseries with a minimum of either one (1) acre of propagating greenhouse, or three (3) acres of field-grown plant materials or containers; or

vi. Five hundred (500) sheep or two hundred fifty (250) goats; or

vii. At least fifty (50) dairy goats or hogs; or

viii. Any other agricultural use, or combination of uses, which the Planning Director, in consultation with the Agricultural Commissioner, determines to be of the same approximate agricultural value and intensity as (i) through (vii) above.

ix. Farm labor quarters for agricultural uses not meeting the criteria of (i) through (viii) above may be permitted upon first securing a major use permit in each case. The Review Authority shall find in each case that:

1. A bona-fide agricultural use operates on the site, and

2. That the qualifying agricultural use existed prior to application for the farm labor quarters, and

3. The owner of the property resides on the same parcel where the farm labor quarters will be located. **(Ord. No. 1749, 7/7/1988)**

2. Farm labor quarters shall comply with the development standards of the base zoning district, and combining district where applicable.

3. Parking shall be provided as required in Article 46.

4. Trailer coaches, mobile homes and single-family dwellings not meeting the minimum construction standards of Section 32.11 may be approved upon first securing a minor use permit in each case. The Review

Authority shall review each minor use permit to insure that the proposed

quarters will be compatible with existing development through conditioning the permit, which may include conditions as to: size, screening, access, siting and construction standards for the proposed dwelling unit. **(Ord. No. 1749, 7/7/1988)**

5. Farm labor quarters are exempt from the foundation requirements of Section 21-32.11. **(Ord. No. 1974, 12/20/1990)**

(h) Granny unit:

1. A granny unit zoning permit may only be issued subsequent to or concurrently with the construction of the principal dwelling on the same parcel.

2. A granny unit shall meet the development standards of the zoning district (except as provided in Subsection 6 below) and the performance standards of Article 41.

3. The granny unit shall be for the sole occupancy of one (1) adult or two (2) adult persons, one of whom is sixty (60) years of age or over. **(Ord. No. 1749, 7/7/1988)**

4. The granny unit may be attached or detached from the principal dwelling, provide that all of the setbacks of the base zoning district applicable to the primary dwelling are met. **(Ord. No. 2886, 01/27/2009)**

5. A granny unit shall not be permitted on a lot in addition to a guest house, residential second unit or similar dwelling. If a granny unit has been approved on a lot, a guest house, residential second unit or similar dwelling shall not be permitted unless the granny unit is removed, or converted to another authorized use.

6. The gross floor area of the granny unit shall not exceed seven hundred and twenty (720) square feet on parcels with a net parcel size less than 40,000 square feet. On parcels of 40,000 square feet or larger net parcel size, the granny unit shall not exceed one thousand and eight (1,008) square feet. For the purpose of this Section, gross floor area shall not include garages and opened or covered porches, and net parcel size shall not include land serving as any road easement. **(Ord. No. 1749, 7/7/1988; Ord. No. 2618, 2/27/2003)**

7. In addition to the parking requirements of the principal residence, one (1) parking space shall be provided for the exclusive use of granny units that are 720 square feet or less in size, and two (2) parking spaces shall be provided for granny units that exceed 720 square feet. **(Ord. No. 2618, 2/27/2003)**

8. The granny unit shall contain kitchen and bathroom facilities separate from those of the principal dwelling.

(i) Guest house:

1. A guest house shall be an accessory structure consisting of a detached living quarter of permanent type of construction, located within two hundred (200) feet of the main building.

2. The guest house shall not contain provisions for kitchens. **(Ord. No. 1749, 7/7/1988)**

3. The guest house shall not be leased, subleased, rented, or subrented separately from the main dwelling.

4. The minimum gross floor area required for a guest house shall be two hundred (200) square feet, and shall not exceed a maximum of one thousand (1,000) square feet.

5. Vehicle access to the guest house shall be by way of the driveway of the main building and in no case shall a separate point of access be created to the adjoining road or highway.

6. One (1) parking space shall be provided for the exclusive use of the guest house in addition to the parking requirements of the principal residence.

7. Guest houses shall comply with the development standards of the zoning district (except as noted in Subsection 4 above) and the performance standards of Article 41.

8. A guest house shall not be permitted on a lot in addition to a granny unit, residential second unit, ag family dwelling, farm labor quarters or similar dwelling. If a guest house has been approved on a lot, a granny unit, residential second unit, ag family dwelling, farm labor quarters or similar dwelling shall not be permitted unless the guest house is removed, or converted to another authorized use. **(Ord. No. 1820, 5/11/1989)**

9. A hardship guest house with a temporary kitchen may be approved upon first securing a minor use permit in each case. Any minor use permit for a hardship guest house shall meet the following conditions **(Ord. No. 1749, 7/7/1988; Ord. No. 2618, 2/27/2003)**:

   i. Kitchen facilities shall be removed upon expiration of the permit.

   ii. The minor use permit shall be valid for a period of three (3) years or longer as determined by the Review Authority.

   iii. The permit shall expire upon any sale or transfer of the property.

iv. A hardship guest house shall comply with all conditions pertaining to a guest house except condition 27.3(i)2. **(Ord. No. 1749, 7/7/1988)**

v. A mobile home approved for use as a hardship guest house shall not be located on a permanent foundation. **(Ord. No. 1974, 12/20/1990)**

10. The Review Authority granting a use permit for a hardship unit shall find, based on a physician's or other licensed health care professional's documentation, that a physical or mental impairment has resulted in the need for a supervised living environment for the impaired person. For a hardship guest house located in the "APZ", "A", or "TPZ" districts, physical impairment shall not include any respiratory, allergic, or other impairment incompatible with agricultural operations.
(Ord. No. 1749, 7/7/1988; Ord. No. 1820, 5/11/1989)

11. Notwithstanding Section 21-27.3(i)7., trailer coaches or mobile homes not meeting the minimum construction standards of Section 32.11 may be approved for a hardship guest house in the "A", "APZ", and "TPZ" districts upon a finding by the Review Authority that the proposed quarters will be compatible with existing development. The use permit may include conditions as to: Size, screening, access, siting and construction standards for the proposed dwelling unit.
(Ord. No. 1820, 5/11/1989)

(j) Home Occupation: **(Ord. No. 2172, 8/12/1993)**

1. The home occupation shall be strictly secondary and subordinate to the principal residential use and shall not change or detrimentally affect the residential, agricultural or rural character of the dwelling, premises, or neighborhood.

2. In the "R1" and "R2" districts and on lots of less than one (1) acre in the "SR" district, the home occupation shall be conducted only in the dwelling or attached garage, and not in any detached garage, storage shed, or accessory building. In other districts where home occupation is allowed, the home occupation shall be conducted entirely within the dwelling or an accessory structure that is incidental in size to the principal dwelling. **(Ord. No. 1749, 7/7/1988)**

3. Any structural alterations to the dwelling for the home occupation may be approved subject to the review and approval of the Planning Director, if consistent with the character of the area and the architecture of the building. **(Ord. No. 1749, 7/7/1988)**

4. In the "R1" and "R2" districts and on lots of less than one (1) acre in the "SR" district, the home occupation shall be conducted solely by the dwelling occupant(s) and no on-site employees shall be connected with the home occupation. In other zoning districts, on-site employees shall be limited to one (1) employee per two (2) acres and a maximum of five (5) employees.

5. Pick-up and deliveries to the premises by commercial carrier are limited to ten (10) per week.

6. One (1) non-illuminated sign shall be permitted. In the "R1" and "R2" zoning districts and on lots of less than one (1) acre in the "SR" district, signs shall not exceed one (1) square foot in area, and shall be mounted flat against the wall of the dwelling or on the face of a fence. In other zoning districts where home occupation is allowed, signs shall not exceed two (2) square feet in area and may be located anywhere on the parcel.

7. A maximum of eight (8) customers, clients, students, or other persons served by the home occupation(s) shall be permitted on the premises on any one (1) day, only between the hours of 8:00 a.m. and 8:00 p.m., and for no more than one (1) hour at a time. Exceptions to these time limits may be approved through the minor use permit process. Home occupations involving visits by customers, clients, students, or other persons served by the home occupation shall only be permitted in single-family dwellings. **(Ord. No. 1749, 7/7/1988)**

8. A home occupation shall not create any radio or television interference or create noise audible at the property line.

9. There shall be no outdoor storage of materials or supplies related to the home occupations.

10. In the "R1", "R2" and "SR" districts, other than vehicles associated with principal uses of the property, one (1) vehicle shall be permitted in connection with the home occupation not to exceed one and one-half (1-1/2) ton capacity. In other zoning districts where home occupation is allowed, a maximum of two (2) vehicles, not to exceed one and one-half (1-1/2) ton capacity each, shall be permitted. **(Ord. No. 1749, 7/7/1988)**

11. In addition to the on-site parking required for the principal residential use, on-site parking shall be provided for all vehicles connected with the home occupation. **(Ord. No. 2172, 8/12/1993)**

(k) <u>Newspaper distribution centers</u>:

1. Each individual newspaper publisher, distributor, or contractor proposing to establish a distribution center shall obtain a zoning permit.

2. Newspaper distribution centers for the distribution of bundled newspapers to carriers, including incidental folding, inserting, etc; shall not be located within two hundred (200) feet of any residence.

3. No new structures shall be permitted without application for a minor use permit.

4. The permittee shall supervise carriers so that the operation will not disturb the sleep of nearby residents. To this end, there shall be no outdoor music, no bright lights, no loud conversation, and no idling of vehicle motors; and the permittee shall closely monitor carriers and employees to insure strict adherence to all motor vehicle codes.

5. Access to any distribution center shall be by a paved public street.

6. The site shall be kept clear of any litter or debris.

7. The zoning permit for a newspaper distribution center shall be valid for a period of one (1) year. Application for extension of the zoning permit shall be in writing on the form provided by the Planning Department. Such application shall be made prior to the expiration of the current permit. The permit may be extended up to three (3) years per extension request. The Planning Director may require application for a use permit for extension of a zoning permit if after inspection or complaints indicate that the use may be objectionable by reason of production of emission of noise, offensive odor, smoke, dust, bright lights, vibration, or unusual traffic.

(l) Produce stand:

1. Only one (1) produce stand shall be permitted per lot.

2. A produce stand shall be permitted only if accessory to crop production on the same lot.

3. A produce stand may sell fruits, vegetables, nuts and cut flowers grown on the same lot or on other lots in the County; and may sell other agricultural products produced in the County such as eggs, honey or beeswax.

4. A produce stand may sell only those ornamental plants that are grown on the same lot as such stand is located.

5. No commodities other than those listed above may be sold from a produce stand.

6. The floor area of such stand shall not exceed four hundred (400) square feet. **(Ord. No. 1749, 7/7/1988; Ord. No. 2128, 1/14/1993)**

7. The produce stand shall not be located or maintained within thirty (30) feet of any public road, street or highway. This setback area shall be kept free to provide for off-street parking.

8. The produce stand shall be of a temporary nature and shall not be constructed with a permanent foundation.

9. Signs shall be limited to two (2) single-faced sixteen (16) square foot non-illuminated signs, attached to the stand. Sign dimensions shall not exceed four (4) feet. **(Ord. No. 1749, 7/7/1988)**

(m) Residential second unit:

1. A residential second unit, attached or detached, shall meet the development standards of the zoning district and the performance standards of Article 41.

2. No more than one (1) attached or detached residential second unit shall be permitted on any one lot.

3. The residential second unit shall not exceed the density of the Lake County General Plan.

4. A residential second unit shall not be permitted on a lot in addition to a guest house, granny unit or similar dwelling. If a residential second unit has been approved on a lot, a guest house, granny unit or similar dwelling shall not be permitted unless the residential second unit is removed, or converted to another authorized use.

5. The residential second unit shall contain kitchen and bathroom facilities separate from those of the principal dwelling.

6. **REPEALED (Ord. No. 1749, 7/7/1988)**

(n) Rummage sale, non-profit:

1. A rummage sale shall be limited to the sale of second-hand goods by individuals or non-profit organizations, including garage and yard sales which are open to the public and occur more than six (6) days per calendar year but not to exceed twelve (12) days per calendar year.

2. The permittee shall supervise all participants so that the sale will not disturb nearby residents. To this end, there shall be no outdoor or amplified music, no sales open to the public before 8:00 a.m. or after 6:00 p.m., no continuous operation of gas-powered equipment, and no sales of live animals or pets.

3. The site shall be kept clear of any litter or debris and returned to its original condition, unless alternative measures have been approved by the Planning Director.

4. A rummage sale shall not be located so as to obstruct traffic or reduce sight distance at any driveway or intersection.

5. Two (2) signs shall be permitted for individuals limited to two (2) square feet in area each, non-illuminated, and in-place only during the sale; signs for non-profit organizations shall be limited to thirty-two (32) square feet in area, non-illuminated, and in-place only during the sale.

6. Applicants shall provide a parking plan which provides for sufficient numbers of parking spaces, adequate access and circulation, for review and approval by the Planning Director.

7. A rummage sale shall not reduce the number or usability of parking spaces for other uses on the site below the minimum required by the base zoning district or as required by use permit, unless such sale is conducted during a time when all other uses on the site are closed to the public.

8. The rummage sale zoning permit shall be valid for one (1) calendar year or twelve (12) days of actual sale, whichever occurs first. The permit may be extended on a year to year basis upon submittal of an application for extension. The Planning Director may require application for a use permit for extension of a zoning permit if after inspection or complaints indicate that the use may be objectionable by reason of production or emission of noise, offensive odor, smoke, dust, bright lights, vibration, unusual traffic, or involve the handling of explosives or dangerous materials.

(o) <u>Special outdoor event, non-profit</u>:

1. A special outdoor event shall include but not be limited to outdoor activities such as street dances, craft fairs, sporting events, harvest festivals, open-air plays, sidewalk or parking lot sales when sponsored by an individual(s) or non-profit organizations and not to exceed three (3) days duration. Special outdoor event shall not include events held by individual(s) or non-profit organizations which occur on land specifically designed for such events, including but not limited to sporting stadiums, race tracks, and fraternal lodge or club yard areas.

2. No more than three (3) special events per calendar year shall be permitted on the same site.

3. The permittee shall supervise all participants so that the special event will not disturb nearby residents.

4. The special event shall be limited to the hours of 7:00 a.m. to 10:00 p.m., not including all setting-up and taking-down of displays, booths, stages, sound and lighting equipment. Street dances shall be limited to approved house of operation.

5. Special events, excluding sporting events, shall not obstruct traffic or reduce sight distance at any driveway or intersection.

6. The applicant shall submit for each event the following plans for review prior to issuance of a special event zoning permit, unless waived by the Planning Director:

   i. Project description including estimated number of participants and spectators.

   ii. Parking and traffic control plan which provides for sufficient parking, circulation and access.

   iii. Solid and liquid waste disposal plan which provides for adequate means for solid and liquid waste disposal and removal.

   iv. Public safety, noise, crowd control, and emergency contingency plan(s).

7. The site shall be kept clear of any litter or debris and shall be returned to its original condition upon completion of each event unless alternative measures have been approved by the Planning Director.

8. A special event shall not reduce the number or usability of parking spaces for other uses on the lot below the minimum required by the zoning district or as required by use permit, unless such event is scheduled to occur during a time when all other uses on the site are closed to the public.

9. The permit may be extended up to three (3) years per request upon application at the Planning Department. The Planning Director may require application for a use permit for extension of a zoning permit if inspection or complaints indicate that the use may be objectionable by reason of production or emission of noise, offensive odor, smoke, dust, bright lights, vibration, unusual traffic, or involves the handling of explosives or dangerous materials.

(p) <u>Temporary dwelling</u>:

1. One (1) trailer coach, recreational vehicle, mobile home or single-family dwelling may be used as a temporary dwelling unit for a period of time not to exceed one (1) year during the construction of a dwelling unit on the same lot. In the case of a manufactured home installation, the temporary

dwelling unit may be used for a period of time not to exceed three (3) months. **(Ord. No. 2128, 1/14/1993; Ord. No. 2618, 2/27/2003)**

2. Applicants for a temporary dwelling zoning permit shall, prior to issuance of a zoning permit:

   i. Obtain a building permit for the principal dwelling unit.

   ii. Obtain building and health permits for the inspection of the water supply, waste discharge system and electrical installation for the temporary dwelling.

   iii. If the principle dwelling will be constructed on site, install the foundation or waste discharge system for said dwelling. If the principal dwelling will be a manufactured home, install the waste discharge for said home. **(Ord. No. 2618, 2/27/2003)**

   iv. Obtain a demolition permit from the County for the removal of the temporary dwelling if it is an existing mobile home on the site. If the temporary dwelling is an existing single-family dwelling, obtain a building permit for its demolition or conversion to another use. Mobile homes may not be converted to another use. **(Ord. No. 2128, 1/14/1993; Ord. No. 2618, 2/27/2003)**

3. The temporary dwelling shall be removed from the lot if it is a mobile home, or disconnected from water, waste discharge system and electrical services if it is a recreational vehicle, within forty-five (45) days of completion of the home or approval of an occupancy permit for the principal dwelling by the County, whichever is earlier, but not to exceed three (3) months in case of a manufactured home. **(Ord. No. 2618, 2/27/2003)**

4. To determine compliance with Subsection 3 above, the applicant shall obtain an inspection of the property upon completion of the principal dwelling unit, within one (1) year of the issuance of the zoning permit in the case of a principal dwelling constructed on site, or within three (3) months in the case of a manufactured home. **(Ord. No. 2618, 2/27/2003)**

5. If the principal dwelling is constructed on site, two (2) extensions of a temporary dwelling zoning permit may be issued on the same lot, each for an additional one (1) year period, upon application in writing for an extension. If the principal dwelling is a manufactured home, one (1) extension of the temporary dwelling zoning permit may be issued on the lot, for an additional three (3) month period. Application for extension shall be subject to the same procedures and requirements as the original zoning permit as specified in Subsections 1 through 4 above. **(Ord. No. 1749, 7/7/1988; Ord. No. 2618, 2/27/2003)**

6. Application for an extension shall be accompanied by evidence of valid building permits and evidence of substantial progress of construction, which may be photographs or an inspection report from the County. **(Ord. No. 1897, 12/7/1989; Ord. No. 2618, 2/27/2003)**

7. A temporary dwelling shall meet the performance standards of Article 41 and all development standards of the zoning district except for the minimum residential construction standards.

(q) Temporary office:

1. One (1) commercial coach-mobile home may be used as a temporary office for a period of time not to exceed one (1) year during the construction of a commercial office on the same site.

2. Applicants for a temporary office zoning permit shall, prior to issuance of a zoning permit:

   i. Obtain a building permit for the principal structure.

   ii. Obtain building and health permits for the inspection of the water supply, waste discharge system and electrical installation for the temporary office.

   iii. Install the foundation or waste discharge system for the principal office.

3. The temporary office shall not be permanently attached to the ground and shall be of such a size that it is readily removable.

4. The temporary office shall be removed from the site within forty-five (45) days of completion of the office or commercial building, or approval of an occupancy permit for the principal structure by the County Building Department, but not to exceed one (1) year from the issuance of the zoning permit.

5. The applicant shall obtain an inspection permit for the inspection of the property upon completion of the principal structure, but no later than one (1) year after the issuance of the zoning permit to determine compliance with Subsection 4 above.

6. Two (2) extensions of a temporary office zoning permit may be issued on the same site for an additional one (1) year period upon application in writing for an extension. Applications for extension shall be subject to the same procedures and requirements as the original zoning permit as specified in Subsections 1 through 4 above. **(Ord. No. 1749, 7/7/1988)**

7. Application for an extension shall be accompanied by evidence of valid building permits and evidence of substantial progress of construction, which may be photographs or an inspection report from the County Building Department.

8. A temporary office shall meet the development standards of the zoning district but need not meet the general performance standards of Article 41.

(r) Temporary construction office:

1. One (1) commercial coach-mobile home may be used as a temporary construction office during a construction project approved pursuant to the requirements of this Chapter.

2. Applicants for a temporary construction office zoning permit shall obtain building and health permits, as applicable, for the inspection of the water supply, waste discharge system and electrical installation for the temporary construction office.

3. The temporary construction office shall not be permanently attached to the ground and shall be of such a size that it is readily removable.

4. All uses shall be conducted within the temporary construction office, and no outdoor storage or work areas shall be authorized by the temporary construction office zoning permit, except for trash storage containers.

5. Signs shall meet the requirements of Article 45.

6. The permit shall expire after either: 1) the project has been completed; or 2) the contractor has completed the contract or the contract between the County and the occupant has been terminated; or 3) three (3) years after its issuance, whichever is earlier. **(Ord. No. 1749, 7/7/1988)**

7. The temporary construction office shall be removed from the site within forty-five (45) days after the completion of the project, vacation by the occupant, termination of the contract, or expiration of the permit, whichever is earlier.

(s) Temporary sales office for an approved subdivision:

1. The sales office may be located either on one of the proposed lots of a subdivision upon approval by the Planning Commission of a tentative subdivision map or on one of the recorded lots in a subdivision of the same subdivider in the immediate vicinity.

2. The sales office shall not be permanently attached to the ground and shall be of such a size that it is readily removable unless it is within some

portion of a model home, other than the garage, or unless the Planning Commission has approved its conversion to a permanent use.

3. So long as it is used as a sales office, it shall not be used for any purpose other than the sale of lots in the particular subdivision within which it is located or for the sale of lots in a subdivision of the same subdivider in the immediate vicinity.

4. The garage of a model home may be used for the sales office subject to conversion of the tract office to a garage at the expiration of the permit. No occupancy of the model home for dwelling purposes shall be permitted until the office has been removed or a covered space is provided for the dwelling unit.

5. The permit shall expire after either: 1) initial sales have been made of all lots within the tract within which it is located or all lots in a subdivision of the same subdivider in the immediate vicinity; or 2) three (3) years after its issuance, whichever is earlier. The permit may be extended by the Planning Director upon application of the subdivider for good cause shown. **(Ord. No. 1749, 7/7/1988)**

(t) Wind energy conversion system, (WECS):

1. One (1) wind energy conversion system (WECS) shall be permitted per lot. More than one (1) WECS per lot or a WECS which cannot meet the standards of this Subsection shall require a major use permit pursuant to Section 27.14(ai).

2. The WECS shall not exceed one hundred fifty (150) feet in tower height or seven hundred six (706) square feet of rotor (30' diameter).

3. The WECS shall be set back a minimum distance of one and one-quarter (1¼) times the total height of the structure from any lot line and a minimum of ten (10) feet from any other structure on the property.

4. The minimum height of the lowest part of the blade tips shall be thirty (30) feet above the maximum building height limit of the base zoning district or thirty (30) feet above all structures or trees within a (200) foot radius. WECS which convert kinetic energy of wind into mechanical energy to pump water shall have a minimum clearance of fifteen (15) feet from the lowest extension of the blade tip to the ground.

5. Lattice or other towers capable of being climbed shall have:

   i. Tower climbing apparatus located not closer than twelve (12) feet from the ground; or

   ii. A locked anti-climb device installed on tower; or

iii. The tower shall be completely enclosed by a locked protective fence at least six (6) feet in height.

6. A WECS capable of causing radio or television interference shall be filtered and/or shielded so as to prevent the emission of radio frequency energy which would cause interference with radio and/or television broadcasting or reception.

7. All WECS shall meet the manufacturer's specifications which certify that the WECS are equipped with a braking system, blade pitch control and/or other mechanisms for rotor control and have both manual and automatic overspeed controls.

8. Noise emitted from any WECS shall not exceed fifty-five (55) dBA Ldn at any lot line.

(u) Temporary sales from a vehicle: **(Ord. No. 1749, 7/7/1988)**

1. An application for a zoning permit for temporary sales from a vehicle shall be subject to all the conditions of Section 21-27.13(ai), except conditions 5 and 17.

2. Prior to approval of the zoning permit, an application for a minor use permit for temporary sales from a vehicle shall be accepted as complete by the Planning Department.

3. The zoning permit for temporary sales from a vehicle shall be valid for a period of forty-five (45) days.

4. Only one (1) zoning permit for temporary sales from a vehicle may be issued in a calendar year to any vendor or on any single site. **(Ord. No. 1749, 7/7/1988)**

(v) Vendor's permit: **(Ord. No. 1749, 7/7/1988)**

1. Applications for a vendor's permit shall be accompanied by photos or renderings of sales structure(s) to be used.

2. The application shall specify all locations where sales are proposed.

3. The application shall be accompanied by an itinerant business permit, if applicable, for the proposed use issued by the Sheriff pursuant to Chapter 11 of the Lake County Code.

4. An application involving the sale of any prepared food, seafood, snack bars, pre-packaged food, approved unpacked food, or similar food item for retail sale, or distribution at no cost, shall be accompanied by a food service or food facility permit issued by the Lake County Health Department pursuant to the requirements of the California Uniform Building Code; except as waived for non-profit organizations.

5. Up to two (2) vendors permits may be permitted per lot.

6. Hours of operation shall be limited to the hours between 8:00 a.m. and 10:00 p.m., daily.

7. Vendors permits may be issued for the retail sale of items such as flowers, balloons, and souvenirs; including vendors of foods such as hot dogs, sandwiches, cotton candy, snow cones, ice cream; and including newsstands.

8. Only two (2) carts, push carts, stands, trailers, kiosks or similar sales structures not exceeding one hundred sixty (160) square feet in area shall be used in conjunction with a vendor's permit. **(Ord. No. 1749, 7/7/1988)**

(w) Wireless Communication Facilities, Temporary: **(Ord. No. 2868, 7/10/2008)** Refer to Section 71.5 of the Zoning Ordinance.

(x) Farmers' Market: **(Ord. No. 2947, 5/3/2011)**

1. A zoning permit for a farmers' market, subject to conditions two (2) through twelve (12), may be issued when one of the following conditions is satisfied as determined by the Community Development Director. Applications not meeting one of these conditions shall require a minor use permit.

   i. The site is commercially zoned and has adequate facilities to accommodate the anticipated peak load of customers, including parking, circulation and fire suppression; or

   ii. The site is zoned Agriculture and has an existing, permitted winery or agricultural service establishment with adequate facilities to accommodate the anticipated peak load of customers.

2. Activities permitted are: Outdoor sales of produce, food products, plants and flowers. Non-food or non-vegetative product booths may comprise no more than 15% of the total sales area. Farmers' markets not meeting these standards may be applied for as Commercial Rummage Sales [27.13(ae)].

3. Sales of food items shall comply with the requirements of the Health Department and Agricultural Commissioner. Certification of any farmers'

market shall be issued by the Agricultural Commissioner pursuant to the California Department of Food and Agriculture Code of Regulations. The permit holder shall ensure that all vendors have obtained any required permit.

4. All sales activities shall be located in areas that are maintained as dust-free. No sales activities or parking shall be permitted within any road or highway right-of-way.

5. The farmers' market shall be limited to one (1) day of operation per week.

6. Hours of operation shall be limited to the hours between 8:00 a.m. and 8:00 p.m., daily. Set-up and take-down of displays and booths may extend beyond these hours, but must be completed the same day.

7. The site shall be kept clear of any litter or debris and shall be returned to its original condition upon completion of each event unless alternative measures have been approved by the Community Development Director.

8. Access to the farmers' market and parking area shall be provided by a driveway or driveways consistent with County standards for distance from street corners or other driveways, and width.

9. Temporary on-site signs shall be limited to one single-sided or double-sided sign, including sandwich signs, no larger than 24 square feet per face. Temporary signs shall be allowed for the duration of the farmers' market season. Permanent on-site and off-site signs shall be allowed pursuant to Article 45 of this Code.

10. No on-site or off-site signs shall be placed within any road or highway right-of-way.

11. Trash receptacles shall be provided for disposal of trash on the site. The site shall be cleared of all trash immediately following each day of sale.

12. The farmers' market zoning permit shall be valid for two (2) years and may be extended up to two (2) years per request upon application with the Community Development Department. The Community Development Director may require application for a minor use permit for extension of a zoning permit if after inspection or complaints indicate that the use may be objectionable by reason of production or emission of noise, offensive odor, smoke, dust, bright lights, vibration, unusual traffic, or involves the handling of explosives or dangerous materials.

27.4 Early Activation of Use: Notwithstanding the provisions of Section 21-27.10 pertaining to uses generally permitted with a use permit and those uses listed as permitted subject to first obtaining either a minor or major use permit in each zoning district, the Planning Division may issue an early activation permit allowing for the immediate activation of

any use requiring a minor use permit or major use permit, subject to the following conditions **(Ord. No. 2336, 2/15/1996)**:

(a) The early activation permit shall not allow any construction, grading, or removal of mature trees on the property.

(b) Adequate measures shall be included in the early activation permit application and implemented upon commencement of the use for dust control, parking, traffic safety, drainage, erosion control, waste disposal and Health Department requirements.

(c) The early activation permit must be accompanied by an application for the applicable minor or major use permit.

(d) The early activation permit shall expire six (6) months from the date of issuance or upon issuance or denial of the required minor or major use permit or resolution of any appeal thereof.

(e) The Planning Division may deny an application for an early activation permit for early activation of use if the use may result in adverse environmental impacts or if the use is currently being operated in violation of this Chapter.

(f) Early activation is not permitted for those uses listed in Section 22.6 of this Chapter.

(g) The application for an early activation permit shall be accompanied with a fee equivalent to that established by the Board of Supervisors for the issuance of a zoning permit.

SEC. 21-27.10 USES GENERALLY PERMITTED WITH A USE PERMIT

27.11 Uses generally permitted with a Minor or Major Use Permit: Uses listed in Table B are permitted in zoning districts indicated upon issuance of a minor use permit in the case of the symbol "O", or upon issuance of a major use permit in the case of the symbol "λ", according to the provisions of Sections 27.12 and 27.13. **(New Table B, Ord. No. 1749, 7/7/1988; Ord. No. 1897, 11/7/1989; Ord. No. 1974, 12/20/1990; Ord. No. 2128, 1/14/1993; Ord. No. 2172, 8/12/1993; Ord. No. 2512, 4/27/2000; Ord. No. 2594, 07/25/2002; Ord. No. 2618, 2/27/2003; Ord. No. 2670, 12/25/2003, Ord. No. 2679, 03/02/2004)**

27.11.1 Geothermal Setback Area: There is hereby established a Geothermal Setback Area as set forth in Map A which is attached hereto as Exhibit A and is incorporated herein as if fully setforth. **(Ord. 2679, 3/2/2004)**

27.12 Exception: The Planning Director or Zoning Administrator shall have the authority to increase the level of review indicated in Table B from minor use permit to major use permit when a project subject to this Article is found:

(a) Not in compliance with the performance standards set forth in Article 41; or

(b) Objectionable by reason of production or emission of noise, offensive odor, smoke, dust, bright lights, vibration, unusual traffic, or involve the handling of explosives or dangerous materials; or

(c) As having a significant impact on the environment; or

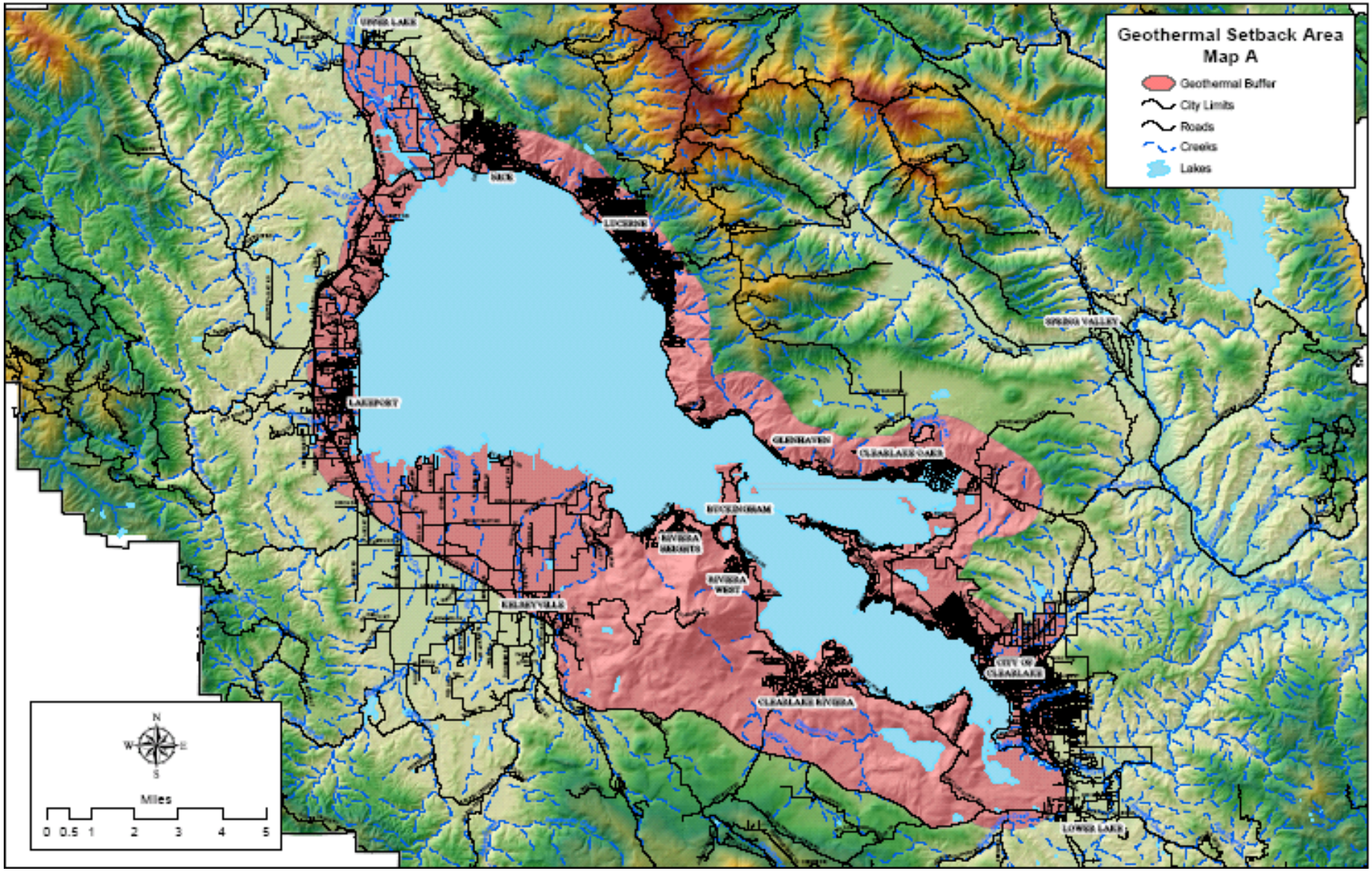
(d) Inconsistent with the Lake County General Plan; or

(e) To be of substantial public controversy.

In no case shall any level of review be reduced.

27.13 Conditions: When the symbol "Δ" is shown by Table B, use-specific conditions are included herein. These conditions shall be incorporated into any use permit issued hereunder, but shall not be construed as preventing as part of any use permit approval, additional conditions deemed necessary.

27.11.1- Exhibit A- Map A- Geothermal Setback Area (Ord. 2679, 3/2/2004)



Sec. 27.11 Table B Uses generally permitted with a Use Permit ● Major Use Permit o Minor Use Permit Δ Standards included in Subsection (a) through (ar)

Zoning Districts

Special Uses	APZ	A	TPZ	RL	RR	SR	R1	R2	R3	C1	C2	C3	CR	CH	M1	M2	MP	O	W	U	
(a) Airport, Airstrip or Heliport [5]	●	●	●	●	●	●					●	●	●		●	●	●	●			
(b) Bed and Breakfast Inn [2, 5, 9]		O		O	O	O			●		●		O	O							Δ
(c) Cemetery		●		●	●	●					●	●									
(d) Church or Private School [2]				●	●	●	●	●	●	●	●			●							
(e) Community Care Facility [8]				●	●	●	●	●	●		●	●									Δ
(f) Community Club [2,3]	O	O			●	●	●	●	●	●	●										Δ
(g) Cottage Industry		O		O	O	●															Δ
(h) Country Club [2]				●	●	●	●	●	●		●		●								
(i) Dam or Reservoir, Small							O	O	O	O	O							O	●		Δ
(j) Dam or Reservoir, Medium [1]				O	O	O	●	●	●	●	●	O	●	O	O	O	O	●	●		Δ
(k) Dam or Reservoir, Large [1]	O	O	O	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		Δ
(l) Density Bonus Provision					●	●	●	●	●												Δ
(m) Geothermal Research Well [10]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Δ
(n) Geo-Exploratory Well Projects [10]	●	●	●	●	●							●		●	●	●	●	●			Δ
(o) Geo-Field Development Project [10]	●	●	●	●	●							●		●	●	●	●	●			Δ
(p) Geo-Direct-Use Application	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	●	●	●	Δ
(q) Health Care Facility					●	●	●	●	●		●						●				
(r) Large Family Day Care [2]				O	O	O	O	O	O	O	O	O			O		O				Δ
(s) Marina				●	●	●	●	●	●	●	●		●	●					●		Δ
(t) Mining and Resource Extraction	●	●	●	●	●							●		●	●	●	●	●		●	
(u) **Repealed** (Ord. No. 2836, 09/20/2007																					.

(1. Ord. No. 1749, 7/7/1988; 2. Ord. No. 1897, 11/07/1989; 3. Ord. No. 1974, 12/20/1990; 4. Ord. No. 2128, 01/14/1993; 5. Ord. No. 2172, 08/12/1993; 6. Ord. No. 2512, 04/27/2000; 7. Ord No. 2868, 07/10/2008; 8. Ord. No.2618, 2/27/2003; 9. Ord. No.2670, 12/25/2003; 10. Ord. No. 2379, 03/02/2004)

Sec. 27.11 Table B Uses generally permitted with a Use Permit ● Major Use Permit o Minor Use Permit Δ Standards included in Subsection (a) through (ar)

Special Uses	APZ	A	TPZ	RL	RR	SR	R1	R2	R3	C1	C2	C3	CR	CH	M1	M2	MP	O	W	U	PDR	PDC	
(v) Nursery School				●	●	●	●	●	●		●	●			●		●						Δ
(w) Outdoor Recreation Facility				●	●	●	●			●	●		●										
(x) Power Generation Facility	●	●	●	●	●										●	●	●	●					Δ
(y) Public Area	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O					
(z) Public or Private Utility	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
(aa) Repealed [7]																							
(ab) Rifle Range		●	●	●	●													●					Δ
(ac) Road Building: Import/Export of Fill [2]	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	●	●	●			
(ad) Rummage Sale, Non-Profit	O	O	O	O	O	O	●	●	●	O	O	O	O	O	O								
(ae) Rummage Sale, Commercial											●	●		●	●								
(af) Sanitary Landfill		●		●	●											●							
(ag) Service Station [5]										O	O	O	O	O									Δ
(ah) Special Event, Commercial		●		●	●	●	●				●	●	●	●									
(ai) Temporary Sales From a Vehicle	O	O		O						O	O	O		O									Δ
(aj) Wind Energy Conversion System [2]										●	●	●	●	●									Δ
(ak) Collectors Permit [1]	O	O	O	O	O	O	O	O	O			O			O	O							Δ
(al) Drop-off Recycling Center [1]										O	O	O		O	O	O	O						Δ
(am) Large Recycling Center [1]											O	O		O	O	O	O						Δ
(an) Recycling Processing Center [1]												●			●	●	●						Δ
(ao) Exotic Animal Keeping [4]	●	●	●	●	●	●	●																
(ap) Farmers' Market [6]		O								O	O	O	O	O									Δ
(aq)Wireless Communication Facilities, Collocation [7]	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O			O	O	Δ
(ar) Wireless Communication Facilities, New or Replacement [7]	●	●	●	●	●	●						●			●	●	●	●					Δ

(1. Ord. No. 1749, 7/7/1988; 2. Ord. No. 1897, 11/07/1989; 3. Ord. No. 1974, 12/20/1990; 4. Ord. No. 2128, 01/14/1993; 5. Ord. No. 2172, 08/12/1993; 6. Ord. No. 2512, 04/27/2000; 7. Ord No. 2868, 07/10/2008; 8. Ord. No.2618, 2/27/2003; 9. Ord. No.2670, 12/25/2003; 10. Ord. No. 2379, 03/02/2004)

(a) Airstrip and heliport: None.

(b) Bed and breakfast inn:

1. A bed and breakfast inn shall contain three (3) but not more than eight (8) guest rooms used, designed or intended to be used, let or hired out for occupancy for one (1) or more guests. In the "CR" and "CH" zoning districts, these provisions may include a bed and breakfast as defined in Section 68.4(b)3. **(Ord. No. 1897, 12/7/1989)**

2. For bed and breakfast inns, approved smoke detectors shall be installed in each lodging room, approved fire extinguisher(s) shall be installed in the structure and an evacuation plan shall be posted in each lodging room.

3. Guest rooms may be detached from the principal dwelling or principal commercial use on parcels of two (2) acres or larger, if said lodging is a component of a larger tourist-related use of the site, and provided that an on-site dining facility for guests is provided in close proximity to the guest rooms. **(Ord. No. 2886, 01/27/2009)**

4. No cooking facilities shall be permitted in guest rooms. Food service shall be limited to inn guests only.

5. The maximum stay for guests shall not exceed fourteen (14) consecutive days.

6. Special events and live entertainment including but not limited to weddings, art or antique shows, craft fairs, wine or food fairs, and music festivals shall not be permitted as part of a bed and breakfast inn, except when specifically authorized as part of the bed and breakfast inn use permit approval.

7. Each bed and breakfast inn shall be identified by a non-illuminated or indirectly illuminated attached or freestanding sign, a minimum of three (3) square feet in size but no larger than six (6) square feet in size, which shall be placed so as to be visible and readable from the street or roadway. **(Ord. No. 2128, 1/14/1993)**

8. One (1) parking space per guest room shall be provided for the exclusive use of the guests in addition to the parking requirements of the principal residence.

(c) Cemetery: None.

(d) Church or private school: None.

(e) Community care facility:

1. A community care facility shall only be permitted with full-time supervision by the licensed owner or lessee on the premises, except for brief absences as provided for in the state and County regulations.

2. The issuance of a use permit for the use shall be subject to the issuance of a license and/or certification by all appropriate local and state agencies. The community care facility shall be discontinued when local or state certification is withdrawn or expires.

3. The project description for each application shall include the following information which shall be included by reference in any permit approval:

   i. Description of the physical facility.

   ii. Legal description and address of proposed facility.

   iii. Number of automobiles to be operated by the residential care facility and the number of off-street parking spaces to be provided.

   iv. Approximation of daily visitor parking.

   v. Brief description of the facility building and any remodeling plans.

   vi. Number of resident and non-resident staff, with a description of the day-to-day supervision provided by the staff. Statement of House Rules shall be included.

   vii. Description of the program, e.g. goals, treatment, methodology, anticipated length of stay of residents, type(s) of problem being treated.

   viii. Number and type (type of disability, average age, etc.) of person for whom care is being provided.

4. Each approved use permit shall specifically identify the type and number of individuals. Any increase in the number or change in the type of individuals shall require a new use permit approval.

(f) Community club, private club, or fraternal organization:

1. In any district zoned "A", Agriculture, this use shall be limited to agricultural related organizations. This use includes incidental and accessory uses and activities such as weddings, meetings and dances.

2. Minimum lot area shall be twenty thousand (20,000) square feet, and there shall be a six (6) foot wide buffer strip with visual screening of at least three (3) feet in height on all sides abutting residential districts or uses.

3. A landscape plan and site plan shall be submitted to the Development Review Committee for review and approval.

4. Parking shall be no less than the minimum required in Article 46; all parking shall be screened to a minimum height of three (3) feet from the view of surrounding residential districts or uses.

5. The project site shall front on and be served by an existing publicly maintained road.

6. Signs shall be as required in Article 45.

(g) Cottage Industry:

1. A cottage industry is a small-scale commercial or manufacturing activity on low-density agricultural or residential property accessory to the residential use of the parcel when such activities are conducted without significant adverse impact on the residential, agricultural or rural nature of the premises and its surroundings.

2. A wide range of uses may be permitted that are similar to the following examples and consistent with the definition provided in paragraph 1 above: Woodworking, blacksmith and pottery shops; furniture and upholstery repair or refurbishing; arts and crafts or photography studios; handicrafts manufacture including sewing, painting, weaving, knitting, ceramics, doll making, stained glass, jewelry or leather working; small computer applications and electronics repair or service; food preparation including catering services, cake decoration, baking and confectionery.

   On parcels of five (5) acres or more a cottage industry may also include the storage of one (1) piece of agricultural, excavating or grading equipment including one (1) tow vehicle and one (1) trailer within a completely enclosed building; "tow vehicles" may include dump trucks of up to five (5) cubic yards capacity or any flatbed or other commercial vehicle of up to five (5) tons capacity; "heavy equipment" may include

one (1) bulldozer (of up to D-4 size or equivalent), roller, grader, cat, loader, backhoe, tractor, agricultural implement or similar equipment.

3. The following uses shall not be permitted as cottage industry: Any auto, truck, boat or other vehicle repair or service; light or heavy equipment repair or service; contractor's equipment in excess of that listed in paragraph 2 above, or materials storage yards of any kind; commercial dock or boat construction; businesses offering retail sales or goods manufactured or produced off-site; real-estate sales offices; any businesses primarily engaged in retail sales.

4. The cottage industry must be owned and conducted only by residents of the parcel on which the proposed use has been authorized. Not more than two (2) non-resident employees may work on the premises.

5. Only those buildings or parking areas as specifically approved may be utilized in the conduct of the cottage industry.

6. A minimum of one (1) parking space shall be provided for any cottage industry requiring customers to visit the site in addition to the parking requirements of the principal residence, plus one (1) parking space for each employee working on site.

7. Retail sales of products not produced on the premises shall be prohibited. Retail sales of products produced on the premises shall be secondary and incidental to the conduct of the cottage industry. Retail sales shall primarily be by appointment.

8. A maximum of eight (8) customers, clients, students, or other persons served by the cottage industry shall be permitted on the premises on any one day.

9. Pick-up and deliveries to the premises by commercial carrier are limited to ten (10) per week.

10. All activity related to the conduct of cottage industries shall be conducted within an enclosed structure and shall not exceed one thousand two hundred (1,200) square feet in area.

11. Vehicles approved for use in the cottage industry may be stored as approved on the site plan.

12. Signs shall be limited to one (1) four (4) square foot non-illuminated or indirectly illuminated sign. **(Ord. No. 1749, 7/7/1988; Ord. No. 1974, 12/20/1990; Ord. No. 2172, 8/12/1993)**

(h) Country club: None.

(i) Dam or reservoir, small:

1. A small dam shall not exceed six (6) feet in height from the natural bed of the stream or watercourse at the downstream toe of the barrier; a small reservoir shall not exceed five (5) acre feet.

2. All applications for small dams or reservoirs shall be accompanied by a detailed plan approved by the U.S.D.A. Soil Conservation Service, or prepared by a registered civil engineer. An excavated pond (totally below grade) may require an engineering plan.

3. All small dams or reservoirs located on a stream shall receive an approved 1601 or 1603 permit issued by the State Department of Fish and Game prior to issuance of a grading permit.

4. The applicant shall apply to the State Department of Water Resources, Division of Water Rights for water rights determination or permit. The permittee shall file with the Planning Department a water rights determination or permit prior to issuance of grading or building permits for construction of a small dam or reservoir.

(j) Dam or reservoir, medium:

1. A medium dam shall not exceed fifteen (15) feet in height from the natural bed of the stream or watercourse at the downstream toe of the barrier; a medium reservoir shall not exceed fifteen (15) acre feet.

2. All applications for medium dams or reservoirs shall be accompanied by a detailed plan approved by the U.S.D.A., Soil Conservation Service, or prepared by a registered civil engineer with assistance of a registered engineering geologist. An excavated pond (totally below grade) may require an engineering plan.

3. All medium dams or reservoirs located on a stream shall receive an approved 1601 or 1603 permit issued by the State Department of Fish and Game prior to issuance of a grading permit.

4. The applicant shall apply to the State Department of Water Resources, Division of Water Rights for water rights determination or permit. The permittee shall file with the Planning Department a water rights determination or permit prior to issuance of grading or building permits for construction of a medium dam or reservoir.

(k) Dam or reservoir, large:

1. A large dam shall exceed fifteen (15) feet in height from the natural toe of the barrier. A large reservoir shall exceed an impounding capacity of more than fifteen (15) acre feet.

2. All applications for large dams or reservoirs shall be accompanied by an engineering plan prepared by a registered civil engineering with assistance of a registered engineering geologist.

3. All large dams or reservoirs located on a stream shall receive an approved 1601 or 1603 permit issued by the State Department of Fish and Game prior to issuance of a grading permit.

4. The applicant shall apply to the State Department of Water Resources, Division of Water Rights for water rights determination or permit, and to the Department of Water Resources, Division of Dam Safety for approval to construct. The permittee shall file with the Planning Department a water rights determination or permit and letter of approval from the Division of Dam Safety prior to issuance of grading or building permits for construction of a large dam or reservoir.

(l) Density bonus provisions:

1. Low and moderate income housing: A developer of housing proposing to construct at least twenty-five (25) percent of the total units of a housing development for persons and families of low or moderate income; or, construct ten (10) percent of the total units of a housing development for lower income households, or construct fifty (50) percent of the total dwelling units of a housing development for qualifying residents (seniors); shall be granted by the county a density bonus and an additional incentive, or financial equivalent incentive(s) as determined by the county. **(Ord. No. 1749, 7/7/1988; Ord. No. 2128, 1/14/1993)**

   i. For the purposes of this Section "density bonus" shall mean density increase of at least twenty-five (25) percent over the otherwise maximum allowable residential density under the zoning district and land use element of the General Plan.

   ii. The density bonus shall not be included when determining the number of housing units which is equal to ten (10) or twenty-five (25) percent of the total.

   iii. The density bonus shall only apply to housing developments of five (5) or more dwelling units.

iv. For the purposes of this section, "housing development" shall include subdivision and any apartment, multi-family dwelling, dwelling group, or condominium development of five (5) or more units.

v. A developer shall only be entitled to one (1) of the three (3) density bonuses provided for under subsection (l).

vi. For the purposes of this section, "persons and families of low or moderate income..." shall be as defined in Section 50093 of the Health and Safety Code; and "lower income households..." shall be defined in Section 50079.5 of the Health and Safety Code; and "qualifying residents" shall be as defined in Section 51.2 of the Civil Code. **(Ord. No. 1749, 7/7/1988)**

vii. For the purpose of this Section, "other incentives…" may be a combination of the following, of equivalent financial value of a twenty-five (25) percent density bonus:

(aa) Reduced improvement standards contained in the Subdivision Ordinance (Chapter 17, Article 7, Section 17-28); and

(ab) Reduced development standards contained in the Zoning Ordinance (Chapter 21); and

(ac) Reduced performance standards contained in the Zoning Ordinance (Chapter 21)

viii. Prior to preparation of an application which includes a request for a residential density bonus, the applicant or a representative shall attend a pre-application meeting with Planning Department staff.

ix. Any developer proposing to obtain a density bonus or other incentive shall either:

(aa) Submit a preliminary proposal for the development of housing with written request for other incentives or a bonus density ninety (90) days prior to the submittal of any formal request for general plan amendment, zoning amendment, subdivision map, development review, or use permit. **(Ord. No. 1749, 7/7/1988)**

(ab) Submit a written proposal for a bonus density concurrently with the initial development application.

x. The County shall, within ninety (90) days of receipt of a written proposal, notify the housing developer in writing of the manner in

which it will comply with this Section unless the time period is waived by the developer.

xi. The Planning Director shall prepare a report on any request for density bonus or other incentives for review and approval by the Planning Commission and Board of Supervisors. Said hearing shall be noticed in the manner provided for in Section 57.3. This report may include, but is not limited to, a review of existing density entitlements under the Lake County General Plan and Zoning Ordinance, a review of proposed sales prices and/or costs of improvements, suggested number of units that are to be designated low or moderate income housing, and the project specific mechanisms and procedures necessary for implementation of this Section, including proposed sales or rental prices, sale or rental procedures, development agreements, time periods, etc.

xii. Notwithstanding any other provision of this Code, reduction in the improvement standards of Chapter 17 or the development or performance standards of Chapter 21 pursuant to this Section upon approval of the Board of Supervisors of a density bonus determination shall not require further amendment, variance or waiver from these standards and such reductions shall be deemed in compliance with Chapters 17 and 21 of the Lake County Code.

2. Energy conservation: A developer of housing proposing a development project incorporating innovative energy conservation techniques in excess of standards set forth in Titles 20 and 24 of the California Administrative Code (referenced hereafter as: state standards) may be granted a density bonus not to exceed twenty-five (25) percent.

i. For the purpose of this Section "density bonus" shall mean a maximum density increase of twenty-five (25) percent over the otherwise maximum allowable residential density under the zoning district and land use element of the Lake County General Plan.

ii. The density bonus shall not be included when determining the number of housing units which is equal to a maximum of twenty-five (25) percent of the total.

iii. The density bonus shall only apply to housing developments of four (4) or more dwelling units.

iv. For the purpose of this Section, "housing development" shall include subdivision and any apartment, multifamily dwelling, dwelling group, or condominium development of four (4) or more units.

v. A developer shall only be entitled to one (1) of the three (3) density bonuses provided for under Subsection (l).

vi. Prior to preparation of an application which includes a request for a residential density bonus, the applicant or a representative shall attend a pre-application meeting with Planning Department staff.

vii. Applications shall include information clearly demonstrating how the proposed energy saving measures shall be implemented.

viii. Energy conservation bonus: Projects incorporating any or all of the following energy conservation measures may be granted a maximum ten (10) percent density bonus. When an energy analysis conducted by a qualified person acceptable to the Planning Department indicates that a reduction in residential energy use in excess of ten (10) percent of what would occur if the residence was constructed in accordance with the state standards will occur, a density bonus equivalent to the percentage of energy conserved may be granted not to exceed a twenty-five (25) percent density bonus. The bonus shall be calculated in accordance with the provisions set out in Figure 1.

Figure 1.

Techniques	**Maximum Density Bonus**
Energy efficient site planning	5%
Energy efficient construction	5%
Solar domestic hot water heating	5%
Solar residential space heating	10%

ix. Applications shall be evaluated based on the following energy efficient site planning concepts:

(aa) Site selection - Higher densities should be on south-facing slopes and lower densities on north-facing slopes.

(ab) Street layout - Streets should be oriented on an east and west axis to the greatest extent possible, although topography shall be considered.

(ac) Lot layout - Lots should be oriented with their greatest dimensions north and south to the greatest extent possible.

(ad) Building site - The long axis of a building envelope should be oriented east and west to the greatest possible extent. Zero lot line and shading will also be evaluated.

(ae) Landscaping - New trees shall be located with respect to buildings or solar collectors in order to provide solar heat gain and shade as appropriate.

(af) Other energy savings consideration - Other site planning techniques will be considered when proposed.

x. Applications shall also be evaluated based on the following passive energy efficient construction measures:

(aa) Solar access, solar gain; window sizes, placement and shading; roof overhangs.

(ab) Insulation and building materials.

(ac) Other innovative energy conservation techniques including air locks, greenhouses, trombe walls, etc.

(ad) Percent of energy savings for heating and air conditioning above state standards for residential energy conservation.

xi. Applications shall also be evaluated based on the following solar domestic hot water or active space heating:

(aa) Size and efficiency of collectors.

(ab) Storage capacity.

(ac) Percentage of hot water or space heating the system provides.

3. Geothermal energy conservation: When all proposed units in a housing development will be equipped with any of the following conservation measures a maximum density bonus of twenty-five (25) percent may be granted. The bonus shall be calculated in accordance with the provisions set forth in Figure 2.

Figure 2.

Techniques	**Maximum Density Bonus**
Domestic hot water	10%
Water source heat pumps	10%
District space heating	15%
Other geothermal techniques	10%

i. Proposals will be evaluated on the percentage of hot water or spaceheating the system provides.

ii. For the purposes of this Section "density bonus" shall mean a maximum density increase of twenty-five (25) percent over the otherwise maximum allowable residential density under the zoning district and land use element of the Lake County General Plan.

iii. The density bonus shall not be included when determining the number of housing units which is equal to a maximum of twenty-five (25) percent of the total.

iv. The density bonus shall apply to housing developments of four (4)or more dwelling units.

11. A developer shall only be entitled to one (1) of the three (3) bonuses provided under Subsection (l).

12. Prior to preparation of an application which includes a request for a residential density bonus, the applicant or a representative shall attend a pre-application meeting with Planning Department staff.

13. Applications shall include information clearly demonstrating how the proposed geothermal energy conserving measures shall be implemented.

(m) Geothermal Research Well:**(Ord. No.1749, 7/7/1988; Ord.No. 2679, 03/02/2004)**

1. A geothermal research well shall not exceed five thousand (5,000) feet in depth.

2. Maximum well diameter shall be five (5) inches.

3. Well design and construction shall prohibit future conversion for production.

4. No toxic materials, such as chromate, shall be used in the drilling fluid.

5. Upon abandonment, the research well pad site shall be revegetated and returned to approximately its original condition.

6. A maximum of six (6) research wells may be filed under a single application.

7. Research wells shall be limited to a parcel(s) of not less than five (5) acres.

8. The surface location of a geothermal research well shall not be located within that area indicated by Geothermal Setback Area- Map A (Sec. 21-27.11.1)

(n) Geo-exploratory well projects: **(Ord.No.1749,7/7/1988;Ord.No.2679, 03/02/2004)**

1. A geothermal exploratory well(s) shall not be drilled within one-half (1/2) mile of any populated area (defined as ten (10) or more dwelling units established within a quarter-mile diameter area) or a recorded major subdivision (defined as five (5) or more lots less than twenty (20) acres in size), without the written consent of at least seventy-five (75) percent of the property owners.

2. The surface location of a geothermal exploratory well(s) shall not be located within that area indicated by Geothermal Setback Area- Map A (Sec. 21-27.11.1)

3. An exploratory well(s) shall be limited to a parcel or contiguous parcels of not less than twenty (20) acres.

4. A maximum of six (6) geothermal exploratory wells may be approved under a single application.

5. Any new geothermal exploratory well shall not be located closer than one-half mile from the surface location of a well capable of producing geothermal resources in commercial quantities existing prior to the approval of the exploratory well use permit application.

(o) Geo-field development project **(Ord. No. 1749, 7/7/1988; Ord. No. 2679, 03/02/2004)**

1. A geothermal field development well(s) shall not be drilled within one-half (1/2) mile of any populated area (defined as more than ten (10) dwelling units established within a one-quarter (1/4) mile diameter area) or a recorded major subdivision (defined as five (5) or more lots less than twenty (20) acres in size), without the written consent of at least seventy-five (75) percent of the property owners.

2. The surface location of a geothermal field development well(s) shall not be located within that area indicated by Geothermal Setback Area- Map A (Sec. 21-27.11.1)

3. A field development well(s) shall be limited to a parcel or contiguous parcels of not less than twenty (20) acres.

(p) Geo-direct use well project:

1. The drilling of new geothermal direct use well(s) shall not exceed three thousand (3,000) feet in depth. Wells exceeding two thousand (2,000) feet in depth shall require a major use permit. **(Ord. No. 1749, 7/7/1988)**

2. No toxic materials such as chromate shall be used in the drilling fluid.

3. A geothermal direct use well(s) shall be limited to a parcel(s) of not less than five (5) acres.

4. Geothermal direct use wells proposed in conjunction with a project requiring a use permit or specific plan of development approval shall be processed with the larger project.

5. Geothermal direct use wells with over one thousand (1,000) feet of new road construction or located within five hundred (500) feet of a dwelling or three hundred (300) feet of a lake, perennial or seasonal creek shall require a major use permit. **(Ord. No. 1749, 7/7/1988)**

6. A geothermal direct use well project with three (3) or more wells shall require a major use permit.

7. Only geothermal direct use wells utilizing downhole heat exchangers may be processed by a minor use permit. All geothermal direct use wells which remove geothermal fluids from the well bore shall require a major use permit.

8. Water wells drilled for water-source heat pump applications shall be exempt from the provisions of this section, provided that the water temperature is 86°F or less and the well depth does not exceed three hundred (300) feet. **(Ord. No. 2128, 1/14/1993)**

(q) Health care facility: None. **(Ord. No. 1749, 7/7/1988)**

(r) Large family day care home:

1. A minor use permit is required for large family day care homes and nursery schools providing family day care to seven (7) to twelve (12) children, inclusive, including children who reside at the home.

2. All outdoor play areas are to be enclosed with fencing, a minimum of four (4) feet high, provided that such fencing is to be solid and six (6) feet in height on any property line abutting a residential use on an adjoining lot.

3. Hours of operation: Shall be between 7:00 a.m. and 9:00 p.m. daily.

4. Access: The site shall front on a paved road of a minimum eighteen (18) foot paved width.

5. Parking and loading: A minimum of two (2) on-site parking spaces shall be reserved for the use of dropping off and picking up of children. These spaces shall be in addition to the normal parking requirements of the residence. The drop off area should be a drive thru loop, or an on-site turnaround area should be provided.

6. Fire:

   i. A minimum of one (1) fire extinguisher and one (1) smoke detector shall be maintained in good working order on the premises. These devices shall meet the standards of the State Fire Marshal.

   ii. The use shall comply with the standards of the State Fire Marshal on the number of exits.

   iii. The use shall be conducted in compliance with the State Fire Marshal's specifications as to the floor or floors on which day care may be provided.

7. Notice and appeal:

   i. Not less than ten (10) days prior to the proposed issuance, written notice of the proposed issuance of a minor use permit shall be given by mail or delivery by the Planning Director to all owners shown on the last equalized assessment roll as owning real property within a one hundred (100) foot radius of the exterior boundaries of the lot proposed for a large family day care home or nursery school.

   ii. The written notice shall meet the notice requirements of Section 57.2(b) and declare the intent of the Zoning Administrator to issue the requested zoning permit if no written appeal or request for hearing is filed with the Planning Department within ten (10) calendar days of the date of mailing. The notice shall also state that the proposed use meets the requirements of this section.

   iii. If no appeal or request for hearing is filed with the Planning Department, the minor use permit shall be issued by the Zoning Administrator without a hearing.

   iv. If an appeal or a request for a hearing by the applicant or other affected person is filed at the Planning Department pursuant to this Subsection, the Planning Director shall schedule a public

hearing before the Zoning Administrator and provide notice of the hearing as provided for in this Subsection.

v. Appeals pursuant to this Section shall be accompanied by a fee as established by the Board of Supervisors.

(s) Marina:

1. A marina located in any commercial district may provide berthage by rental, lease, or other arrangement; incidental or accessory retail sales of food, fuel, drink, clothing, fishing or boating supplies; and sales, rental, operating instruction, maintenance or repair services for boats or accessory equipment. A marina located in any other district shall only provide berthage, by rental, lease, or other arrangement.

2. In addition to the parking requirements of Article 46, for those uses identified in Subsection 1 above, off-street parking shall be supplied at the ratio of one-half (1/2) parking space for each berth and marinas with boat ramps or hoists shall provide trailer parking at the ratio of one-half (1/2) space per parking space required under this Subsection. **(Ord. No. 1749, 7/7/1988)**

3. Facilities for the storage and sale of fuel, paint, or other flammable materials shall be approved by the chief officer of the agency providing fire protection service in the area in which the marina is located. Fuel pumps shall be grounded and shall meet current fire protection standards.

(t) Mining and resource extraction: None.

(u) Repealed (Ord. No. 2836, 9/20/2007)

(v) Nursery school: (For large family day care homes and nursery schools providing family day care for more than twelve (12) children). None.

(w) Outdoor recreation facility: None.

(x) Power generation facility: **(Ord. No. 2679, 03/02/2004)**

1. An electrical generation facility with a generating capacity in excess of three (3) megawatts shall not be located within one-half (1/2) mile of any populated area (defined as ten (10) or more dwelling units established within a one-quarter (1/4) mile diameter area), or a recorded major subdivision (defined as five (5) or more lots less than twenty (20) acres in size), without the written consent of at least seventy-five (75) percent of the property owners. **(Ord. No. 1749, 7/7/1988)**

2. An electrical generation facility with a generating capacity in excess of three (3) megawatts shall not be located within that area indicated by Geothermal Setback Area-Map A (Sec. 21-27.11.1).

3. An electrical generation facility with a generating capacity in excess of three (3) megawatts shall be limited to a parcel or contiguous parcels of not less than five (5) acres.

(y) Public area: The Planning Director may waive the submission of, or the requirement for a minor use permit if the Director finds that the proposed use or facility is a minor expansion of an existing facility; or will not materially change the existing character of the property or surrounding area. **(Ord. No. 1749, 7/7/1988)**

(z) Public and private utility: None.

(aa) **REPEALED (Ord. No. 2594, 07/25/2002)**

(ab) Rifle, pistol, trap shoot or archery range, outdoor:

1. The minimum lot size requirement for an outdoor rifle or pistol range, or trap shoot used by an organization shall be ten (10) acres. For an outdoor archery range used by an organization, minimum lot size shall be two (2) acres.

2. No target or structure associated with shooting of firearms or arrows shall be located closer than two hundred (200) feet to any lot line.

3. Access to all shooting areas shall be controlled by adequate means. Perimeters shall be fenced and signed.

4. No permit shall be issued for an outdoor rifle, pistol, trap shoot or archery range until the applicant has furnished evidence that the proposed development meets all applicable state and County regulations.

(ac) Road building or import/export of fill: None. **(Ord. No. 1749, 7/7/1988)**

(ad) Rummage sale, non-profit: None.

(ae) Rummage sale, commercial: None.

(af) Sanitary landfill: None.

(ag) Service station:

1. No activities other than the following shall be conducted: Retail sales of fuel, oil, grease, tires, batteries, automobile accessories, and other related items, directly to users of motor vehicles; tuning motors; washing and waxing of autos; auto detailing; wheel and brake adjustment, minor repairs and major repairs; auto glass work; and minor welding. Major automotive repairs, auto glass work, and minor welding must be conducted entirely within a building. The following activities are prohibited: Upholstery work, painting, tire recapping, auto dismantling or salvage, body and fender work, and new and used car sales, rental or leasing; except as permitted in the "C3", "M1" and "M2" districts. **(Ord. No. 1749, 7/7/1988)**

2. No service station located within one hundred (100) feet of an "SR", "R1", "R2", "R1-MH", or "PDR" zoning district boundary shall conduct operations other than between the hours of 6:00 a.m. and 12:00 midnight, with the further provision that no repairs, other than emergency repairs, will be conducted between the hours of 10:00 p.m. and 12:00 a.m.

3. All gasoline pumps and islands shall be set back fifteen (15) feet from the property line; however, if gasoline pumps or islands are set in a perpendicular position to any street or property line, or in any other position other than parallel to a property line, the setback shall be twenty (20) feet. Additional setback may be established by the Planning Commission if deemed necessary to provide for the protection of property values, safety, health, or welfare.

4. All hydraulic hoists and pits, mechanical washing equipment, and repair and lubrication areas shall be within a completely enclosed building.

5. No vehicles shall be parked on the premises other than those of persons attending to business on the site, vehicles being serviced for customers, vehicles of employees, and tow trucks and other service vehicles.

6. Where a service station adjoins property zoned or used for residential purposes, a six (6) foot high solid masonry wall shall be constructed on interior property lines except that the wall shall be three (3) feet in height when adjacent to any required front yard.

7. Construction materials shall be compatible with the surrounding development and approved by the Planning Commission.

8. All restroom entrances shall be screened from view of adjacent properties or street rights-of-way by a solid fence or landscaping screen.

9. All service stations shall provide compressed air and water for use by the public.

(ah) Special event, commercial: None.

(ai) Temporary sales from a vehicle: **(Ord. No. 1749, 7/7/1988)**

1. Applications for a temporary sales permit shall be accompanied by photos or renderings of vehicle to be used.

2. The application shall specify all locations where temporary sales are proposed.

3. The application shall be accompanied by an itinerant business permit, if applicable, for the proposed use issued by the Sheriff pursuant to Chapter 11 of the Lake County Code.

4. An application involving the sale of any prepared food, seafood, snack bars, pre-packaged food, approved unpacked food, or similar food item for retail sales, or distribution at no cost, shall be accompanied by a food service or food facility permit issued by the Lake County Health Department pursuant to the requirements of the California Uniform Food Facilities Law.

5. Up to two (2) temporary sales permits may be permitted per lot.

6. Hours of operation shall be limited to the hours between 8:00 a.m. and 10:00 p.m., daily.

7. Temporary sales permits may be issued for the retail sale of new goods or commodities, craft items, produce or prepared foods, and other uses, which in the opinion of the Planning Director are of a similar nature to those listed above. Temporary sales in the "APZ", "A", and "RL" districts is limited to the sale of produce.

8. Temporary sales shall not include used goods or commodities, or large or bulky items.

9. The minimum distance between lots approved for temporary sales shall be one thousand (1,000) feet.

10. Only one (1) vehicle of one and one-half (1½) tons or less in capacity shall be used in conjunction with a temporary sales permit.

11. The vehicle and all accessory items shall be removed from the site at the close of business each day.

12. The outdoor display of goods or commodities for sale shall not exceed one hundred (100) square feet in area, excluding display within or upon the vehicle.

13. The temporary sales area shall not be located or maintained within thirty (30) feet of any public road, street or highway. This setback area shall be kept free to provide for a minimum of three (3) off-street parking spaces.

14. The temporary sales area shall not reduce the number or usability of parking spaces for other uses on a lot developed for a commercial use below the minimum required by the zoning district or as required by use permit.

15. Portable signs shall be limited to two (2) sixteen (16) square foot non-illuminated signs, not to exceed four (4) feet in any dimension.

16. Temporary sales from a vehicle shall meet the development standards of the zoning district in which the site is located.

17. The minor use permit for temporary sales shall be initially valid for a period of one (1) year. Application for extension of the minor use permit may be made prior to expiration of the current permit. Subsequent minor use permits may be granted for periods of up to three (3) years per extension request.

18. The provisions of this Section do not apply to other itinerant vendors selling from a vehicle with no fixed place of business, such as ice cream trucks and mobile snack vans, regulated by Chapter 11 of the Lake County Code. **(Ord. No. 1749, 7/7/1988)**

(aj) Wind energy conversion system, (WECS): (For more than one (1) WECS per lot, or WECS which cannot meet the standards of Section 27.3(t)). None.

(ak) Collector's permit: **(Ord. No. 1749, 7/7/1988)**

1. A collector's permit shall be a residential accessory use.

2. All outdoor storage shall be completely screened to a height of six (6) feet by a solid wood or masonry fence, when not completely enclosed in a building unless alternative screening is specifically authorized by this use permit.

3. Outdoor storage areas shall be fully screened from public view from exterior property lines and from public roadways within one-half (1/2) mile of the open storage area.

4. There shall be no outdoor storage in any required yard area.

5. There shall be no outdoor storage in any front yard in the "SR", "R1", "R2" or "R3" districts.

6. Storage shall only occur in those areas shown on the approved plot plan.

7. A collector's permit may also permit the open and outdoor storage of no more than two (2) unoccupied recreational vehicles on property not possessing a principal use, subject to the following provisions:

   i. The minor use permit application shall be accompanied by proof that the applicant owns the property where the storage is to be located.

   ii. The registered owner of the vehicle(s) must own a dwelling unit on a lot abutting the property where the storage is to be located.

   iii. There shall be no storage of vehicles permitted within any required front yard.

   iv. The permit holder shall agree to maintain the property where the storage is located free of debris, junk, or overgrown weeds.

   v. Any recreational vehicle stored pursuant to this Section shall be currently registered and maintained in a condition to be legally operated on a public street or highway within the State of California. **(Ord. No. 1974, 12/20/1990)**

(al) Drop-off recycling center:

1. Shall meet all the conditions of Section 27.3(fa) or (fb) except as specifically waived by any minor use permit approved pursuant to this Section, for any reverse vending machine, bulk reverse vending machine, mobile recycling unit or small recycling center not meeting the standard conditions of Section 27.3(fa) or (fb). **(Ord. No. 1749, 7/7/1988)**

(am) Large recycling center: **(Ord. No. 1749, 7/7/1988)**

1. A large recycling center may collect all materials of a small recycling center with the addition of motor oil, furniture and large appliances; however, building materials, automobiles or auto parts or other vehicles or machinery or similar items may not be collected.

2. The recycling center shall be screened from the public right-of-way by operating in an enclosed building; or be within an area enclosed by an opaque fence at least six (6) feet in height with landscaping; and at least one hundred fifty (150) feet from property zoned or planned for residential use.

3. All exterior storage of material shall be in sturdy containers which are covered, secured, and maintained in good condition. Storage containers for flammable material shall be constructed of non-flammable material. No storage, excluding truck trailers and overseas containers, will be visible above the height of the fencing.

4. Site shall be maintained free of litter and other undesirable materials, and will be cleaned of loose debris on a daily basis.

5. Customer parking will be provided on-site for six (6) vehicles or the anticipated peak customer load, whichever is higher, to circulate and to deposit recyclable materials in addition to the parking requirements of Article 46; and one (1) parking space will be provided for each commercial vehicle operated by the recycling center.

6. Noise levels shall not exceed the noise levels of Section 21-41.11.

7. If the center is located within five hundred (500) feet of property zoned, planned or occupied for residential use, it shall not be in operation between 7:00 p.m. and 7:00 a.m.

8. Any containers provided for after-hours donation of recyclable materials will be at least one hundred (100) feet from any property zoned or occupied for residential use, shall be of sturdy, rust-proof construction, shall have sufficient capacity to accommodate materials collected, and shall be secure from unauthorized entry or removal of materials.

9. Donation areas will be kept free of litter and any other undesirable material, and the containers will be clearly marked to identify the type of material that may be deposited. The center shall display a notice stating that no material shall be left outside the recycling containers.

10. The center will be clearly marked with the name and phone number of the center operator and the hours of operation.

11. Power-driven processing, including aluminum foil and can compacting, baling, plastic shredding, or other light processing activities necessary for efficient temporary storage and shipment of material, may only be approved through a major use permit for a recycling processing center.

12. A large recycling center not meeting conditions 1 through 10 may be approved upon first securing a major use permit in each case. All conditions of this Section shall apply except as specifically waived by any major use permit approved pursuant to this Section **(Ord. No. 1749, 7/7/1988)**.

(an) Recycling processing center: **(Ord. No. 1749, 7/7/1988)**

1. A recycling processing center shall not be operated within two hundred fifty (250) feet of property zoned or planned for residential use.

2. In a "C3", "M1" or "MP" district, processors will operate in a wholly enclosed building except for incidental storage; or, within an area enclosed on all sides by an opaque fence or wall not less than eight (8) feet in height and landscaped on all street frontages.

3. Power-driven processing shall be permitted, provided all noise level requirements are met.

4. A processing center may accept all materials collected by a large recycling center and used motor oil for recycling from the generator in accordance with Section 25250.11 of the California Health and Safety Code.

5. Setbacks and landscaping requirements shall be those provided for the zoning district in which the center is located.

6. All exterior storage of material shall be in sturdy containers or enclosures which are covered, secured, and maintained in good condition. Storage containers for flammable material shall be constructed of non-flammable material. No storage, excluding truck trailers and overseas containers, will be visible above the height of the fencing.

7. Site shall be maintained free of litter and any other undesirable materials, and will be cleaned of loose debris on a daily basis and will be secured from unauthorized entry and removal of materials when attendants are not present.

8. Space shall be provided on-site for the anticipated peak load of customers to circulate, park and deposit recyclable materials. If the center is open to the public, space will be provided for a minimum of ten (10) customers or the peak load, whichever is higher, in addition to the parking requirements of Article 46.

9. One (1) parking space will be provided for each commercial vehicle operated by the processing center.

10. Noise levels shall not exceed the noise levels of Section 21-41.11.

11. If the center is located within five hundred (500) feet of property zoned or planned for residential use, it shall not be in operation between 7:00 p.m. and 7:00 a.m. The center will be administered by on-site personnel during the hours the center is open.

12. Any containers provided for after-hours donation of recyclable materials will be at least one hundred (100) feet from any property zoned or occupied for residential use; shall be of sturdy, rust-proof construction; shall have sufficient capacity to accommodate materials collected; and shall be secure from unauthorized entry or removal of materials.

13. Donation areas shall be kept free of litter and any other undesirable material. The containers shall be clearly marked to identify the type of material that may be deposited. Center shall display a notice stating that no material shall be left outside the recycling containers.

14. Sign requirements shall be those provided for the zoning district in which the center is located. In addition, center will be clearly marked with the name and phone number of the center operator and the hours of operation.

15. No dust, fumes, smoke, vibration or odor above ambient level may be detectable on neighboring properties. **(Ord. No. 1749, 7/7/1988)**

(ao) Exotic animal keeping: None. **(Ord. No. 2128, 1/14/1993)**

(ap) Farmers' Market: **(Ord. No. 2512, 4/27/2000)**

1. Activities permitted are: Outdoor sales of produce, food products, plants and flowers. Non-food or non-vegetative product booths may comprise no more than 15% of the total sales area. Farmers' markets not meeting these standards may be applied for as Commercial Rummage Sales [27.13(ae)].

2. Sales of food items shall comply with the requirements of the Health Department and Agricultural Commissioner. Certification of any farmer's market shall be issued by the Agricultural Commissioner pursuant to the California Department of Food and Agriculture Code of Regulations. The permit holder shall ensure that all vendors have obtained any required permit.

3. All sales activities shall be located in areas that are maintained as dust-free. No sales activities or parking shall be permitted within any road or highway right-of-way.

4. Access to the farmers' market and parking area shall be provided by a driveway or driveways consistent with County standards for distance from street corners or other driveways, and width.

5. Temporary on-site signs shall be limited to one single-sided or double-sided sign, including sandwich signs, no larger than 24 square feet per face. Temporary signs shall be allowed for the duration of the farmers'

market season. Permanent on-site and off-site signs shall be allowed pursuant to Article 45 of this Code.

6. No on-site or off-site signs shall be placed within any road or highway right-of-way.

7. Trash receptacles shall be provided for disposal of trash on the site. The site shall be cleared of all trash immediately following each sale.

8. The permit for a farmers' market shall initially be valid for five (5) years. Subsequent extensions may be granted through the minor use permit process. **(Ord. No. 2512, 4/27/2000)**

(aq) Wireless Communication Facilities, Collocation: **(Ord. No. 2868, 07/10/2008)** Refer to Section 71.6 of the Zoning Ordinance.

(ar) Wireless Communication Facilities, New or Replacement: **(Ord. No. 2868, 07/10/2008)** Refer to Section 71.7 of the Zoning Ordinance.

ARTICLE 30

SEC. 21-30 REGULATIONS FOR THE SPECIAL LOT SIZE/DENSITY OR "B" COMBINING DISTRICT.

30.1 Purpose: To provide for specified minimum lot sizes; or to promote open space and protect sensitive resources by clustering residential development. Within the "B" combining district, all uses of land shall comply with the regulations of the base zoning district and with the additional regulations of the "B" combining district. In no case shall a "B" combining district reduce a minimum lot size below that required or increase the maximum permitted density above that required in the development standards of the base zoning district with which it is combined. For the purpose of this Section, density shall mean the maximum number of dwelling units permitted per gross acre.

30.2 Special lot sizes and densities available:

(a) "B3" areas: Minimum lot size shall be as specified on the sectional district map.

(b) "B4" areas: Maximum permitted density measured by dwelling units per gross acre shall be as specified on the sectional district map. The minimum lot size shall conform to the base district with which the "B4" district is combined.

(c) "B5" areas: Maximum permitted density measured by dwelling units per gross acre and minimum lot size shall be as specified on the sectional district map.

(d) "B Frozen" areas: Minimum lot size shall be the size of the lot on the effective date of the sectional district map. No further subdivisions of the land is permitted.

1. This designation may be required subsequent to subdivision of "B4", "B5", "B7 areas; and

2. This designation may be required for Rural Lands ("RL") and Rural Residential ("RR") subdivisions utilizing the minimum lot size exception as provided for in Section 7.12(b) or Section 8.12(b).

3. A general plan amendment shall be required prior to consideration of any subsequent rezoning which would allow additional dwelling units or land division entitlements in excess of those authorized by the General Plan at the time the property was zoned "B Frozen". Land divisions which received maximum density under the Lake County General Plan at the time the property was rezoned "B Frozen" shall not be entitled to a residential second unit. **(Ord. No. 1897, 12/7/1989)**

(e) "B7" areas, slope density: The maximum permitted density, or maximum permitted density and minimum lot size shall be as shown in any slope density table based on the average cross slope of the parcel. The sectional district map shall indicate the slope density table number which has been adopted as part of this Chapter.

ARTICLE 37

SEC. 21-37 REGULATIONS FOR THE WATERWAY OR "WW" COMBINING DISTRICT.

37.1 Purpose: To preserve, protect and restore significant riparian systems, streams and their riparian, aquatic and woodland habitats; protect water quality; control erosion, sedimentation and runoff; and protect the public health and safety by minimizing dangers due to floods and earth slides. These purposes are to be accomplished by setting forth regulations to limit development activities in significant riparian corridors and through the establishment of an administrative procedure for the granting of exceptions from such regulations.

Within the "WW" Waterway combining district, all uses of land shall comply with the regulations of the base zoning district and with the additional regulations of the "WW" combining district.

37.2 Applicability: This district may be applied on properties containing the following characteristics as defined in this Section:

(a) Streams identified as "Natural Areas", Figure V-5, Lake County General Plan.

(b) Streams identified as "Critical Resource and Conservation Areas", Figure V-6, Lake County General Plan.

(c) Perennial streams: Any watercourse designated by a solid line symbol on the largest scale United States Geological Survey map most recently published. Perennial streams normally flow throughout the year.

(d) Intermittent streams: Any watercourse designated by a dash and three dots symbol on the largest scale United States Geological Survey map most recently published. Intermittent streams normally flow only in direct response to rainfall and are dry for large parts of the year.

(e) Areas adjacent to those locations identified in Subsections (a) through (d) above that include:

1. Wetlands: Those areas that are inundated or saturated by ground or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.

2. Riparian vegetation: Those plant species that typically occur in wet areas along streams or marshes. Characteristic species are: Fremont Cottonwood (Populus fremontii), White Alder (Alnus rhombifolia), Box Elder (Acer negundo), Dogwood (Cornus nuttallii), Willow (Salix), Big leaf maple (Acer macrophyllum).

3. Natural standing water: Any area designated as standing water on the largest scale United States Geological Survey map most recently published, and that is not man-made, and is adjacent to a perennial or intermittent stream.

37.3 Definitions:

(a) Development activities: Development activities shall include, but are not limited to:

1. Grading and dredging: Excavating or filling or a combination thereof including gravel extraction.

2. Clearing: The removal of vegetation down to bare soil.

3. Building: The construction or alteration of any structure or part thereof, such as to require a building permit.

4. Tree and shrub removal: The topping or felling of any standing vegetation four (4) or more inches in diameter at three (3) feet in height.

5. The deposition of refuse or debris.

This Section shall not be interpreted to include customary agricultural maintenance activities such as plowing, disking, harrowing, seeding, fencing and the burning of tules or stubble; or the planting of pasture, orchards, vineyards, or field and row crops.

(b) Riparian corridor: Those areas which fall into any of the following four (4) categories:

1. Perennial streams: An area extending outward thirty (30) feet from the top of the streambank.

2. Intermittent streams: An area extending outward twenty (20) feet from the top of the streambank.

3. An area extending outward twenty (20) feet from the high water mark of an adjacent area of wetlands or natural body of standing water; or

4. An adjacent area of riparian vegetation. The boundary shall be defined as the outer limit of the occurrence of riparian vegetation and may extend farther than the above specified distances. This boundary may be determined by the Planning Director or Zoning Administrator.

(c) Exception or conditional exception: For the purposes of administration of this Article, an exception is equivalent to a minor use permit and subject to all provisions pertaining to minor use permits as set forth in this Chapter.

37.4 Uses permitted:

(a) All uses permitted in the base zoning district; however, no person shall undertake any development activity within a riparian corridor except when:

1. The development activity is exempt from the provisions of this Article pursuant to Section 37.5; or

2. The development activity has been authorized by an exception or conditional exception pursuant to Section 37.6 of this Article.

37.5 Exemptions: The following activities shall be exempt from the provision of this Article:

(a) The continuance of any pre-existing non-agricultural use provided such use has not been abandoned for a period of one (1) year or more.

(b) Agricultural activities not involving the placement of structures or the removal of riparian vegetation (defined as vegetation four (4) or more inches in diameter at three (3) feet in height) within twenty (20) feet of the top of the streambank.

(c) All activities done pursuant to a valid timber harvest permit.

(d) Emergency clearing and filling measures for the protection of human safety, health or welfare.

(e) Administrative gravel extraction permits pursuant to Chapter 24 which do not result in the removal of riparian vegetation.

(f) Clearing or removal of dead, dying, diseased or downed vegetation within the streambed or on the streambank; and the removal of vegetation obstructing streamflow or causing streambed or streambank erosion.

(g) Maintenance and operation of existing flood control, irrigation and drainage facilities.

37.6 Exceptions: Exceptions and conditional exceptions to the provisions of this Article may be authorized by the Zoning Administrator.

(a) The granting of an exception may be conditioned by the requirement of measures to ensure compliance with the purposes of this Article. Required measures may include, but are not limited to:

1. Maintenance of a protective strip of vegetation between the development and a stream, marsh, or body of standing water. The strip should have sufficient filter capacity to prevent significant degradation of water quality, and sufficient width to provide value for wildlife habitat, as determined by the Zoning Administrator.

2. Installation and maintenance of waterbreaks.

3. Surface treatment to prevent erosion or slope instabilities.

4. Installation and maintenance of drainage facilities.

5. Seeding or planting of bare soil including the establishment of ground cover or the planting of woody vegetation.

6. Installation and maintenance of sediment catch basins.

(b) Concurrent processing of related permits: An application for exception may be processed concurrently with an application for a permit required for the development activity in question. The Review Authority responsible for issuance of the required permit may also authorize an exception, pursuant to the requirements of this Article. No permit for the activities in question shall be issued until an exception has been authorized. Any permit must include any conditions included in the exception.

ARTICLE 41

SEC. 21-41 PERFORMANCE STANDARDS.

41.1 Purpose: To establish performance standards to promote compatibility among various uses of land; protect and enhance the rural-resort character of the County; protect the health, safety, or welfare of the community; and control noise, dust, odor, smoke, vibration, danger to life and property, or similar causes likely to create a public nuisance. All uses permitted in Chapter 21 of the Lake County Code shall comply with all applicable performance standards of the base zoning district, combining district, and as set forth herein, except as provided in Section 41.3.

41.2 Compliance procedures:

(a) The Planning Director may require pertinent information demonstrating that the proposed use will comply with all applicable performance standards prior to issuance of any ministerial or discretionary approval. This information may consist of a report prepared by a qualified technical consultant(s).

(b) When technical information is required, accurate and representative measurements shall be made according to accepted engineering or scientific practice. Measurements shall be made at the exterior lot lines.

41.3 Exceptions:

(a) Uses which are not in compliance with all applicable performance standards at the time of zoning clearance shall require a use permit. The Planning Director shall determine whether a minor or major use permit is required based on the specific characteristics of the proposed use in relationship to the applicable performance standard(s). A major use permit shall be required when the performance characteristics of the proposed use:

1. Have the potential to significantly impact the environment; or

2. Have the potential to create substantial public controversy; or

3. Have the potential to injure the public health, safety or welfare.

(b) The following agricultural uses are exempt from the provisions of Sections 41.6, 41.8, 41.9, 41.11 and 41.15: Livestock grazing, crop and tree farming; animal husbandry; apiaries; and aviaries.

(c) The performance standards contained in the following Subsections are the required minimum. They shall not be construed as preventing the Review Authority, as part of any discretionary approval, to require more restrictive standards as deemed necessary.

41.4 Air quality: All uses shall comply with applicable local, state, and federal laws and regulations regarding contaminants and pollutants. This requirement includes, but is not limited to, emissions of suspended particulates, carbon monoxide, hydrocarbons, odors, toxic or obnoxious gases and fumes.

41.5 Electromagnetic interference: Devices which generate electromagnetic interference shall be so operated as not to cause interference with any activity carried on beyond the boundary line of the property upon which the device is located. Public utilities shall comply with all applicable state and federal regulations. **(Ord. No. 1749, 7/7/1988)**

41.6 Erosion control: The following erosion control standards shall apply to all development projects in commercial or industrial zoning districts:

(a) The smallest practical area of land shall be exposed at any one time during development.

(b) When land is exposed during development, the exposure shall be kept to the shortest practical period of time.

(c) Natural features such as trees, groves, natural terrain, waterways, and other similar resources shall be preserved where feasible.

(d) Temporary vegetation and/or mulching shall be used to protect critical areas exposed during development.

(e) The permanent final vegetation and structures shall be installed as soon as practical in the development.

(f) Wherever feasible the development shall be fitted to the topography and soils to create the least erosion potential.

(g) Provisions shall be made to effectively accommodate the increased runoff caused by changed soil and surface conditions during and after development.

(h) Sediment basins (debris basins, desilting basins, or silt traps) shall be installed and maintained to remove sediment from runoff waters from land undergoing development where needed.

41.7 Fire and explosion hazards: All uses involving the use or storage of combustible, explosive, caustic or otherwise hazardous materials shall comply with all applicable local, state and federal safety standards and shall be provided with adequate safety devices against the hazard of fire and explosion, and adequate fire-fighting and fire suppression equipment.

41.8 Glare and heat:

(a) All exterior lighting accessory to any use shall be hooded, shielded or opaque. No unobstructed beam of light shall be directed beyond any exterior lot line. Buildings and structures under construction are exempt from this provision.

(b) No use shall generate heat so that increased ambient air temperature or radiant heat is measurable at any exterior lot line.

41.9 Landscaping standards:

(a) General: All undeveloped land areas shall be maintained in permanent vegetative cover, or alternatively be landscaped with a combination of materials to control runoff. All yards shall be landscaped such that there shall be no accumulation of silt, mud, or standing water causing unsightly or hazardous conditions, either within the yard or on adjacent properties, public roads, or sidewalks.

(b) Standards of uses permitted in the "R3", "PDR", "PDC", "CH", "CR", "C1", "C2", "C3", "M1", "M2", and "MP" districts: The following recommended landscaping standards shall be required unless an alternative landscaping plan is approved or waived by the Review Authority which meets the intent of this Article.

1. Minimum required landscaping per parcel: All development shall include an area or areas of the parcel for landscaping to serve as a visual screen and/or provide an increased aesthetic environment; except where street frontages are occupied by existing development.

2. The front of the lot shall be landscaped with a minimum of a ten (10) foot wide planted area but not so as to obstruct traffic or reduce sight distance at any driveway or intersection, unless because of the location or design of existing development, or appropriate site planning would make adherence to this standard result in development inconsistent with the purposes of Subsection (b) 1 above, in which case, an alternative landscape plan may be approved by the Review Authority. The landscaping may be interrupted by building entrances or exits and driveways. **(Ord. No. 1749, 7/7/1988)**

3. When abutting any residential district side yard:

   i. The side of the lot shall be landscaped with a minimum of a five (5) foot wide planted area but not so as to obstruct traffic or reduce sight distance at any driveway or intersection; or

   ii. A six (6) foot high wooden fence or masonry wall shall be constructed at the side lot line(s), but shall not exceed four (4) feet in height within any required front yard.

4. When abutting any residential district rear yard:

i. The rear of the lot shall be landscaped with a minimum of a five (5) foot wide planted area when abutting any residential use or district; or

ii. A six (6) foot high wooden fence or masonry wall shall be constructed at the rear lot line.

5. Where a parking lot contains ten (10) or more spaces and is visible from a street, not less than five (5) percent of the parking lot, excluding the area of the landscaped strip required by Subsection (b) 2 shall be landscaped. Such landscaping shall be distributed through the parking lot and shall not be concentrated in any one area. Landscaping shall be computed on the basis of the total amount of parking and driveways provided (except spaces provided for enclosed vehicle storage areas).

6. For landscaping required for parking lots in Subsection (b) 5 above, protective measures including but not limited to concrete curbing, railroad ties, or decorative rock shall border all landscaped area.

7. Existing or indigenous plant materials that meet the requirements of this section may be counted as contributing to the total landscaping required when located within the proposed use area.

8. Minimum plant size: Unless otherwise specifically indicated elsewhere all plant materials shall meet the following minimum standards as indicated in Table 9.1:

Table 9.1 Minimum plant size:

Plant material type	Planting in areas abutting residential property or street	All other plantings
Canopy tree		
Single stem	1 ½ inch caliper	1 ½ inch caliper
Multiple stem	10 feet (height)	6 feet (height)
Understory tree	1 ½ inch caliper	4 feet (height)
Evergreen tree	5 feet (height)	3 feet (height)
Shrubs		
Deciduous	5 gallon container	1 gallon container
Evergreen	5 gallon container	1 gallon container

(Note: plant sizes for indigenous species may be reduced upon approval of the Planning Director).

9. Irrigation required: All landscaping shall be provided with a drip irrigation system or in-ground sprinkler system. If all plant materials are indigenous or drought resident, a temporary or portable irrigation system may be provided. **(Ord. No. 1749, 7/7/1988)**

10. Plan required: A landscape plan, either as an overlay of the proposed site plan or a separate drawing, shall be submitted to the Planning Department for review and approval by the Development Review Committee. The following information shall be included in the plan:

    i. The location of all landscaped areas with the proposed shrubs, trees, and other plant materials clearly labeled with information on size, type, and spacing.

    ii. The location of existing trees and shrubs, including any riparian vegetation, large oak trees, etc., and indicating those existing trees, shrubs, or other indigenous species that are to be included as part of the landscape plan.

    iii. A description and layout of the proposed irrigation system.

    iv. Any additional information or materials required by the Planning Director or Development Review Committee.

11. Final inspection: No use shall commence nor occupancy permit be issued (building finaled) until:

    i. The landscape plan has been implemented and approved as required herein; or

    ii. The applicant has entered into an agreement and posted bonding as required in Subsection (b)12 below for that portion or portion(s) of the landscaping plan determined incomplete. **(Ord. No. 1749, 7/7/1988)**

12. Bonding required **(Ord. No. 1749, 7/7/1988)**:

    i. Where the department determines that the applicant has failed to implement an approved landscape plan according to the provisions of Subsection (b)10 above, the applicant shall be required to enter into an improvement/maintenance agreement with the County Planning Department and provide financial assurance for completion of the required landscaping within one (1) year. The financial assurance may take the form of a certificate of deposit, letter of credit, bond, or other financial assurance acceptable to the Planning Director.

    ii. Such financial assurance shall be set at one hundred fifty (150) percent of the costs necessary to cover all landscape improvements as indicated on the approved landscape plan; and

iii. Such agreement shall provide for maintenance of planting utilizing acceptable horticultural practices, and for replanting of new material where a required planting has not survived the first year after planting. **(Ord. No. 1749, 7/7/1988)**

41.10 Liquid, solid and hazardous wastes:

(a) All uses are prohibited from discharging liquid, solid, toxic or hazardous wastes onto or into the ground and into streams, lakes or rivers. Discharge into a public or private waste disposal system in compliance with applicable local, state, and federal laws and regulations is permitted.

(b) Wastes detrimental to a public sewer system or a sewage treatment plant, shall not be discharged to a public sewer system unless they have been pretreated to the degree required by the authority having jurisdiction over the sewerage system.

(c) The handling and storage of hazardous materials, the discharge of hazardous materials into the air and water; and disposal of hazardous waste in connection with all uses shall be in conformance with all applicable local, state and federal regulations.

(d) All burning of waste materials accessory to any use shall be in compliance with the Lake County Air Pollution Control District rules and regulations.

(e) The disposal or dumping of solid waste accessory to any use, including, but not limited to, slag, paper and fiber wastes, or other industrial wastes shall be in compliance with applicable local, state, and federal laws and regulations.

41.11 Noise: Maximum sound emissions for any use shall not exceed equivalent sound pressure levels in decibels, A-Weighted Scale, for any one (1) hour as stipulated in Table 11.1. These maximums are applicable beyond any property lines of the property containing the noise. (Note: Equivalent sound pressure level (Leq) is a measure of the sound level for any one (1) hour. It is the energy average of all the various sounds emitted from the source during the hour. A-Weighted Scale is used to adjust sound measurements to simulate the sensitivity of the human ear.)

Table 11.1 Maximum one-hour equivalent sound pressure levels (A-Weighted - dBA).

Time of Day	Receiving Property Zoning District		
	Residential*	Commercial	Industrial
7 am - 10 pm	55	60	65

10 pm - 7 am	45	55	60

*Note: The Residential category also includes all agricultural and resource zoning districts.

(a) In the event the receiving property or receptor is a dwelling, hospital, school, library or nursing home, even though it may be otherwise zoned for commercial or industrial and related uses, maximum one-hour equivalent sound pressure received shall be as indicated in Table 11.2.

Table 11.2 Maximum one-hour equivalent sound pressure levels (A-Weighted - dBA).

Time of Day	Level
7 am - 10 pm	57
10 pm - 7 am	50

(b) Noises of short duration: For noises of short duration or impulsive character, such as hammering, maximum one-hour sound pressure levels permitted beyond the property of origin shall be seven decibels less than those listed in Table 11.2 above.

(c) Noises of unusual periodic character: For noises of unusual periodic character, such as humming, screeching, and pure tones, the median octave band sound pressure levels as indicated in Table 11.3 shall not be exceeded beyond the property of origin when the receiving property is zoned residential or is occupied by a dwelling, hospital, school, library, or nursing home.

Table 11.3 Median octave band sound pressure levels.

Octave Band Center Frequency, Hz	7 am - 10 pm	10 pm - 7 am
31.5	68	65
63	65	62
25	61	56
250	55	50
500	52	46
1,000	49	43
2,000	46	40
4,000	43	37
8,000	40	34

(d) Additional allowance: When the receiving property is zoned commercial or industrial and is not a dwelling, hospital, school, library, or nursing home, an additional sound decibel emission above the pressure levels specified in Table 11.3 above shall be permitted as indicated in Table 11.4.

Table 11.4 Additional allowance.

Receiving Property Zone	Additional Decibels Allowed
Commercial	5
Industrial	10

(e) Exemptions: Local noise standards set forth in this Section do not apply to the following situations and sources of noise provided standard, reasonable practices are being followed:

1. Emergency equipment operated on an irregular or unscheduled basis.

2. Warning devices operated continuously for no more than five (5) minutes.

3. Bells, chimes, or carillons.

4. Non-electronically amplified sounds at sporting, amusement, and entertainment events.

5. Construction site sounds between 7:00 am and 7:00 pm.

6. Lawn and plant care machinery fitted with correctly functioning sound suppression equipment and operated between 7:00 am and 8:00 pm.

7. Aircraft when subject to federal or state regulations.

8. Agricultural equipment when operated on property zoned for agricultural activities.

(f) Exceptions: Upon written application from the owner or operator of an industrial or commercial noise source, the Zoning Administrator or Planning Commission, as part of a use permit approval, may conditionally authorize exceptions to local noise emission standards in the following situations:

1. Infrequent noise.

2. Noise levels at or anywhere beyond the property lines of the property of origin when exceeded by an exempt noise, as listed in Section (e) above, in the same location.

3. If after applying Best Available Control Technology (BACT), a use existing prior to the effective date of this ordinance is unable to conform to the standards established by this section.

41.12 Open and outdoor storage, sales and display:

(a) General: Outdoor storage in any district shall be maintained in an orderly manner and shall not create a fire, safety, health or sanitary hazard. **(Ord. No. 1749, 7/7/1988)**

(b) Standards for uses permitted in the "APZ", "A", "TPZ", "RL", "RR", "SR", "R1", "R2", "R3", "U" and "PDR" districts:

1. Except for farm products, supplies or equipment when incidental to a working farm or ranch, construction materials during authorized construction, or firewood; outdoor storage of materials, including but not limited to junk, construction materials, scrap metal, wood, petroleum-based materials or products, paper products, waste or trash materials on parcels of one (1) acre or less shall not exceed an aggregate area of one hundred (100) square feet per lot, or on parcels larger than one (1) acre, four hundred (400) square feet of aggregate area. On parcels of five (5) acres or more in the "RR", "RL", "TPZ", "A" and "APZ" districts, six hundred (600) square feet of aggregate area is permitted. This performance standard does not prohibit the enclosed storage of similar materials in a building of up to two thousand (2,000) square feet in area. **(Ord. No. 1749, 7/7/1988; Ord. No. 1974, 12/20/1990)**

2. Except for farm supplies and products, firewood, boats, farm equipment and unstacked automotive vehicles, open or outdoor storage shall be limited to a height of six (6) feet.

3. Except for farm products, supplies, or equipment; construction materials during authorized construction; or firewood for personal consumption on the premises, outdoor storage shall be completely screened from public view from all exterior property lines and any public roadway within one-half (1/2) mile of the pen storage area by the use of sight obscuring fences, hedges, or other measures determined to be effective by the Planning Director. Securely fastened tarps may be utilized for screening of open storage areas of one hundred (100) square feet or less.

   On parcels of five (5) acres or more, open storage areas shall not be maintained closer than seventy-five (75) feet from any property line. On parcels of less than five (5) acres, open storage areas when not completely enclosed by solid fencing shall have a minimum setback from any property line of a distance of not less than twenty (20) percent of the lot width. **(Ord. No. 1749, 7/7/1988)**

4. There shall be no outdoor storage in any required front yard in the case of interior lot, or required street-side setback area in the case of corner lot, or in an area three (3) feet wide along one (1) side lot line; and there shall be no outdoor storage in any front yard in any "SR", "R1", "R2", or "R3" district. **(Ord. No. 1749, 7/7/1988)**

5. In addition to the outdoor storage permitted in Subsection (b)1 above, the open and outdoor storage of inoperable motor vehicles shall be limited to the following: **(Ord. No. 1749, 7/7/1988)**

   i. The open storage of one (1) inoperable motor vehicle per lot in any "RR", "RL", "A", "APZ", or "TPZ" district. This does not include a Public Nuisance Vehicle as defined in Section 13-13.1(f) of Chapter 13 of the Lake County Code. **(Ord. No. 1749, 7/7/1988; Ord. No. 2618, 2/27/2003)**

   ii. The indoor or outdoor storage of inoperable motor vehicles, subject to first obtaining a minor use permit for a "collector permit" pursuant to Section 21-27.11(ak) in any "APZ, "A", "RL", "RR", "SR", "R1", "R2", "R3", "C3", "M1" or "M2" district. **(Ord. No. 1749, 7/7/1988; Ord. No. 2618, 2/27/2003)**

6. The open storage of any inoperable motor vehicle is prohibited in the "U", "SR", "R1", "R2", "R3" or "PDR" district. **(Ord. No. 2618, 2/27/2003)**

(c) Standards for uses permitted in any "C1", "C2", "C3", "CR", "CH", "M1", "M2", "MP" or "PDC" district: **(Ord. No. 1897, 12/7/1989)**

1. No outdoor storage of materials or equipment shall be permitted in the following areas: Required front yards, off-street parking and loading areas, driveways, landscaped areas, or street right-of-ways.

2. Open and outdoor storage and operation yards (work areas) of an interior lot shall be confined to the area to the rear of a line which is the extension of the front wall of the principal building and shall be screened from view from any street by appropriate walls, fencing, earthen mounds or landscaping as approved in the required landscaping plan. Storage or operation yards on a corner or through lot shall be subject to approval of the Development Review Committee.

3. Open and outdoor storage of materials or products, except for trucks and other vehicles necessary for the operation, shall not exceed a height of eight (8) feet.

4. Open and outdoor storage shall be located so as not to constitute a hazard to adjacent buildings or property and shall not exceed six (6) feet in height when within ten (10) feet of side or rear property lines.

5. Exterior trash and storage areas, service yards, and electrical utility boxes shall be screened from view of all nearby streets and adjacent structures in

a manner that is compatible with the building design. Smaller areas near the building shall be screened with a wall of the same construction as the building wall. Larger areas shall be screened by a solid six (6) foot high fence. Chain-link fencing shall be permitted only when accompanied by heavy landscaping which will grow to screen the fence in three (3) years. Provisions for adequate vehicular access to and from trash, garbage or refuse areas shall be provided.

41.13 Radioactivity: No radiation of any kind shall be emitted in quantities which are dangerous to humans.

41.14 REPEALED. (Ord. No. 1749, 7/7/1988; Ord. No. 2128, 1/14/1993; Ord. No. 2202, 11/25/1993)

41.15 Vibrations: No use shall generate ground vibration which is perceptible without instruments beyond the lot line. Ground vibrations caused by motor vehicles, aircraft, temporary construction work, or agricultural equipment are exempt from these standards.

41.16 Commercial Coach - Mobile homes: Shall only be permitted as permanent offices in the "C3" and "M2" districts. Commercial coach-mobile homes are permitted as temporary uses as provided for in Sections 27.2(q), (r) and (s). **(Ord. No. 1749, 7/7/1988)**

41.17 Restrooms: Restrooms open for public use shall be provided by all retail sales, entertainment or open-to-public recreational uses when gross building floor area exceeds three thousand (3,000) square feet in area per use, and for all retail fuel sales uses. Restrooms shall meet the occupant load factors, accessibility and plumbing facilities regulations of the Uniform Plumbing and Building Codes as amended. The availability and/or location of restrooms shall be noticed by signing when restroom facilities are not readily visible to the public. **(Ord. No. 1749, 7/7/1988; Ord. No. 1897, 12/7/1989)**

ARTICLE 42

SEC. 21-42 DEVELOPMENT STANDARD EXCEPTIONS.

42.1 Purpose: To provide relief where strict adherence to the development standards of the base zoning districts would impose undue hardship and prevent the legitimate use of land consistent with the purpose of this Chapter; and to provide additional regulations for specific uses.

42.2 Lots of record:

(a) Any single lot or parcel of land, which was of record and a legal lot at the time of adoption of this Chapter, but does not meet the requirements of the district in which it is located for minimum lot width and area, may be utilized for all permitted uses, if all other requirements of this Chapter are met.

(b) No lot existing at the effective date of this Chapter shall be reduced in dimension or area in relation to any building thereon so as to be smaller than required by this Chapter. However, in the case of a recorded lot which already has less area or does not conform with the minimum average lot width or maximum length to width ratio as required by this Code, said lot may be reduced in area by not more than ten (10) percent of the existing lot area and the lot dimensions may be modified at the discretion of the Review Authority through the lot line adjustment provisions in Chapter 17, the Subdivision Ordinance of the County of Lake. . **(Ord. No. 1749, 7/7/1988)**

42.3 Height, yard and setback exceptions for agricultural structures, buildings, and fences:

(a) Fences in excess of four (4) feet in height may occupy any required yard provided they are for agricultural purposes, proposed in a district where agricultural uses are a permitted use, and constructed of wire mesh, chain link or other material allowing unobstructed visibility above four (4) feet in height, except as provided for corner lots in Section 42.11(a). **(Ord. No. 1749, 7/7/1988; Ord. No. 2172, 8/12/1993)**

(b) Accessory buildings and structures used for the housing or maintenance of farm animals shall be located at least fifty (50) feet from the front lot line, and twenty (20) feet from any side lot line, and fifty (50) feet from any dwelling on the same or adjacent lot, not including perimeter fencing for grazing purposes. **(Ord. No. 1749, 7/7/1988)**

(c) No occupied beehive or box shall be located within 400 feet of any dwelling on an adjacent lot, nor within 150 feet of any public road, street or highway, or as determined by the Planning Director.

42.4 Yard exceptions:

(a) Every part of a required yard (setback) shall be unobstructed from the ground to the sky, except as otherwise provided in this Article and except for landscaping, septic tanks or other appropriate underground utilities, driveways and sidewalks, and the ordinary projection of sills, buttresses, cornices, chimneys, eaves, solar energy equipment, greenhouses, and ornamental features but in no case shall such projections exceed three (3) feet.

(b) Where a building setback line has been established by a recorded subdivision or parcel map, sectional district map, or as a condition of any approved specific plan of development, use permit, or variance, the required setback shall be the building setback line shown on the subdivision or parcel map or condition of permit approval. This exception includes setbacks for roads, yards, creeks, building envelopes, and special setbacks for the protection of environmentally sensitive areas, or adjacent land uses. In no case shall the required setback be less than that required by the zoning district.

(c) Whenever an official setback line has been established for any street or proposed street designated in Section 21-42.20, Official Setback Line Exceptions, yards required by this Chapter shall be measured from such official line unless the yard requirements of this Chapter are more restrictive when measured from the front lot line. In no case shall the provision of this Chapter be construed as permitting any encroachment upon an official setback line. **(Ord. No. 1749, 7/7/1988)**

(d) In the case of odd-shaped lots where the required yard definitions set forth in this Chapter are not applicable, the Planning Director shall determine the required yards which shall approximate the required yards of a rectangular lot in the same base zoning district.

(e) In the case of through lots, the required side yard shall extend the full depth of the lot between the street lines and there shall be two (2) required front yards for the purpose of computing setbacks.

(f) When corner lots not meeting the width requirements of this Chapter abut two or more streets, the following standards shall apply:

1. The shortest lot frontage shall meet the required front yard standards, the length of this frontage shall be the lot width; and the required rear yard shall be opposite this front yard.

2. The required front yard on the remaining street side of such lot shall be not less than twenty (20) percent of the width of the lot, but in no case shall the required front yard be less than ten (10) feet.

3. The required rear yard of a corner lot backing upon a key lot may be reduced to a depth of ten (10) feet, provided the total yard area required on the lot by the applicable district regulations is not thereby reduced.

(g) Interior lots not meeting the width requirements of this Chapter to be developed with single-family dwellings may have a reduced required side yard equal to ten (10) percent of the average lot width in compliance with the Uniform Building Code. In no case, however, shall the structure encroach closer than three (3) feet to the side lot line. **(Ord. No. 2172, 8/12/1993)**

(h) Lots smaller than five (5) acres, but larger than one (1) acre in size in the Rural Residential, Rural Lands and Unclassified zoning districts may utilize the minimum yard requirements of the Suburban Reserve district Section 9.14. Lots smaller than one (1) acre in size in the "RR", "RL" and "U" districts and lots smaller than fifteen thousand (15,000) square feet in the Suburban Reserve district may utilize the minimum yard requirements of the "R1" Single-Family Residential district Section 10.15. **((Ord. No. 1749, 7/7/1988; Ord. No. 1974, 12/20/1990)**

(i) The yard requirements of this Article and Chapter may be reduced by up to twenty-five (25) percent upon securing a minor use permit in each case. **(Ord. No. 1749, 7/7/1988)**

42.5 Yard exceptions for attached accessory buildings, porches, sundecks, landings, stairways, and solar energy systems:

(a) Where an accessory building is attached to the main building, it shall be structurally a part of and have a common roof or common wall with the main building, and shall comply in all respects with the requirements of this Chapter applicable to the main building.

(b) Open, uncovered, raised porches, decks, landing places or outside stairways may project not closer than four (4) feet to any side lot line, or ten (10) feet to any rear lot line.

(c) Sundecks to serve any story other than the ground floor may project not closer than four (4) feet to any side lot line or ten (10) feet to any rear lot line; provided that such sundeck shall not extend more than twenty (20) feet from the rear of the main structure.

(d) Solar energy systems attached to the south elevation of a principal building may encroach up to ten (10) feet into the required rear yard.

(e) Open, uncovered walkways not exceeding four (4) feet in width or thirty-six (36) inches in height may occupy any required yard area.

42.6 Front yard exceptions:

(a) Where four (4) or more lots in a block, in the same zoning district and on the same side of the street, have been improved with buildings (not including accessory buildings), the required front yard (setback) may be reduced to the average of the existing setbacks; provided that no such front yard shall be less than five (5) feet. If the block is more than 800 feet between intersections, only those parcels within 400 feet of both sides of the subject parcel shall be considered. Vacant lots shall be averaged at the required front yard (setback) line. Any improved lot shall not be averaged at a greater distance than the required yard. This section shall not be interpreted to reduce the required setback for a garage entrance.

(b) Solar energy systems attached to the south elevation of a principal building may encroach up to six (6) feet into the required front yard.

(c) Additions may be made to dwelling units within the required front yard, provided that such addition into the required front yard does not exceed the encroachment of the existing main structure. Additions proposed pursuant to this section which are within ten (10) feet of the front property line shall be subject to the approval of a minor use permit. **(Ord. No. 1749, 7/7/1988)**

42.7 Side yard exceptions for dwelling units:

(a) Where a dwelling unit is located on a lot so that the main entrance is located on the side of the building, the required side yard setback from the front setback line to such entrance, shall not be less than ten (10) feet.

(b) Additions may be made to dwelling units within the required side yards provided that such addition into the side yard does not exceed the encroachment of the existing main structure. In no case, however, shall the addition encroach closer than three (3) feet to the side lot line. **(Ord. No. 2128, 1/14/1993)**

42.8 Yard and setback exceptions for garages and carports; and sloping lots: (Ord. No. 2128, 1/14/1993)

(a) Detached garages and carports in any residential district accessory to a single-family residence may be located on the front one-half (1/2) of the lot, provided that it meets all front and side yard requirements applicable to a main building, is not less than three (3) feet from any dwelling on the same lot or an adjacent lot, and meets all other requirements of this Chapter as to location. **(Ord. No. 1749, 7/7/1988; Ord. No. 2128, 1/14/1993)**

(b) Garage or carport entrances when opening onto any front lot line shall be located not less than twenty (20) feet from said lot line. Garages or carports opening onto any rear or side lot line facing an alley shall be located not less than thirty (30) feet from the far side of the alley. Garage or carport entrances facing any rear or side interior

lot line shall be located not less than twenty-five (25) feet from said line. **(Ord. No. 1749, 7/7/1988; Ord. No. 1897, 12/7/1989)**

(c) Where the slope of the front half of the lot is greater than one foot rise or fall in a distance of seven feet from the established street at the property line, or where the elevation of the lot at the street line is five feet or more above or below the established street elevation, a private garage or carport (attached or detached), open parking platform, or an outside staircase no wider than four (4) feet may be built to the front line, with no encroachment on required side yards. Any garage or carport constructed pursuant to this section shall be oriented towards a side lot line and shall contain a minimum backup area of twenty-five (25) feet. **(Ord. No. 2128, 1/14/1993)**

(d) A detached carport may be located immediately adjacent to a single-family dwelling or mobile home. A detached private garage may be located immediately adjacent to a single-family dwelling or mobile home if the interior of the garage wall adjacent to the single-family dwelling or mobile home is constructed of materials approved for one-hour fire resistive construction. If there are openings in the single-family dwelling or mobile home wall adjacent to the garage wall, the garage shall be placed not less than three (3) feet from the adjacent single-family dwelling or mobile home wall. **(Ord. No. 1749, 7/7/1988)**

(e) **Repealed (Ord. No. 1749, 7/7/1988)**

42.9 Setback exceptions for detached accessory structures and buildings:

(a) Accessory buildings in any residential district (other than a garage or carport) shall be located on the rear one-half (1/2) of the lot and at least three (3) feet from any dwelling existing or under construction on the same lot, or any adjacent lot; except as provided for in Sections 42.8(d) and 42.9(g). **(Ord. No. 1749, 7/7/1988; Ord. 1897, 12/7/1989)**

(b) Accessory buildings shall not be located within three (3) feet of the side lot line of the lot or, in the case of a corner lot, shall not project beyond the required front yard or that required front yard existing on the adjacent lot. **(Ord. No. 1749, 7/7/1988)**

(c) Detached accessory structures shall be kept at a distance no less than three (3) feet from the main building(s) or structure(s); except as provided for in Section 42.8(d). **(Ord. No. 1749, 7/7/1988)**

(d) Swimming pools may be located on the front one-half (1/2) of the lot, but shall not be located less than five (5) feet from any interior side or rear lot line. Such pools are prohibited within the required front yard(s). **(Ord. No. 1749, 7/7/1988)**

(e) Detached accessory structures and buildings in any residential district may be located within the required rear yard provided that they shall not be located less

than three (3) feet from the rear lot line, and provided that accessory buildings within the required rear yard do not occupy more than thirty-five (35) percent of the width of the required rear yard. **(Ord. No. 1749, 7/7/1988)**

(f) Accessory structures that need not meet the setback requirements of this code include ground level sidewalks, stepping stones and pathways, curbs, traffic control berms, retaining walls of three (3) feet in height or less (walls greater than three (3) feet in height may be approved pursuant to Sections 42.11 and 42.14), balanced cuts and fills, importation of fill, light standards and similar ornamental or accessory structures or constructs; not including any dam or dam embankment. **(Ord. No. 1749, 7/7/1988)**

(g) Wells and well houses may be located within a front yard or any required yard area provided they are at least three (3) feet from any property line. Propane tanks may be located within a front yard or any required yard area provided that they are located consistent with the Uniform Fire Code and the Uniform Building Code. When located within any front yard or required front yard, such structures may be screened from view. **(Ord. No. 1897, 12/7/1989; Ord. No. 2172, 8/12/1993)**

42.10 Height exceptions for appurtenant and accessory buildings and structures:

(a) Accessory buildings, in any district except as noted within the various districts and Articles of this Chapter, may not exceed twenty (20) feet in height; however, upon the securing of a minor use permit, this height limit may be exceeded. **(Ord. No. 1749, 7/7/1988)**

(b) Appurtenant structures attached to a principal or accessory building including chimneys, vents, towers, heating and cooling fans or other devices, may be erected to a fifteen (15) percent greater height limit than the limit established for the district in which the structure is located. **(Ord. No. 2202, 11/25/1993; Ord. No. 2594, 7/25/2002)**

(c) Detached and attached appurtenant structures including silos, cupolas, flag poles, monuments, gas tanks, water tanks and those appurtenant structures listed in Section 42.10 (b) may exceed height limits upon the securing of a major use permit in each case. **(Ord. No. 2594, 7/25/2002)**

42.11 Height exceptions for fences, walls, and hedges:

(a) Fences, walls, and hedges not exceeding four (4) feet in height may be placed in the required front yard (setback) of an interior lot. Fences and walls in excess of three (3) feet in height but not higher than four (4) feet may occupy any required front yard of a corner lot, provided that the portion of the fence exceeding three (3) feet that is located within: 1) fifty (50) feet of the corner property line(s) or extended corner property line(s), or 2) from the edge of a prescriptive right of way, whichever provides the most unobstructed vision, is constructed of wire mesh, chain link or other material allowing unobstructed visibility. Fences, walls,

and hedges exceeding four (4) feet but six (6) feet or less in height may be approved in the required front yard area upon first securing a minor use permit in each case if the Review Authority makes the following additional findings **(Ord. No. 1749, 7/7/1988; Ord. No. 2128, 1/14/1993)**:

1. Approval will not result in obstruction of sight distance so as to create or increase any traffic safety hazard.

2. The design of the project provides for off-street, on-site parking of one (1) vehicle in tandem to any gated vehicle entrance. **(Ord. No. 1749, 7/7/1988)**

(b) A maximum six (6) foot high fence, wall or hedge may be located within the required side or rear yard (setback) of an interior lot or corner lot. Fences, walls and hedges exceeding six (6) feet in height may be permitted in the required side or rear yard (setback) of an interior lot, or interior side of a corner lot, subject to the approval of a minor use permit in each case. **(Ord. No. 1749, 7/7/1988; Ord. No. 2128, 1/14/1993)**

(c) Fences, walls, and hedges exceeding four (4) feet in height may not be placed within ten (10) feet of the front property line in the "C2" district. **(Ord. No. 2128, 1/14/1993)**

(d) Fences, walls and hedges in excess of six (6) feet but not exceeding twelve (12) feet may be located around a tennis court anywhere on a lot, except in a required front yard (setback) adjacent to a street, subject to securing a minor use permit. **(Ord. No. 2128, 1/14/1993)**

(e) The Review Authority or Development Review Committee may approve a maximum six (6) foot high wall or fence in any required front yard in any "C3", "M1" or "M2" district. Walls or fences exceeding six (6) feet may be approved subject to first obtaining a minor use permit in each case. **(Ord. No. 1749, 7/7/1988; Ord. No. 2128, 1/14/1993)**

42.12 Height and yard exceptions for utility facilities: Utility distribution and transmission poles and towers are exempt from the maximum height and minimum yard regulations of this Chapter.

42.13 Repealed (Ord. No. 2202, 11/25/1993; Ord. No. 2594, 7/25/2002)

42.14 Height exceptions, general: The maximum height limitations of this Article and Chapter may be exceeded upon securing a major use permit in each case.

42.15 Coverage exceptions:

(a) Swimming pools, open decks and appurtenant energy systems are exempt from the maximum lot coverage requirements of this Chapter. **(Ord. No. 1749, 7/7/1988)**

(b) In the "R1" and "R2" districts, lots less than six thousand (6,000) square feet in area may be developed with single-story structures with a maximum lot coverage of forty (40) percent provided all other requirements of this Chapter are met. **(Ord. No. 1749, 7/7/1988)**

42.16 Length to width ratio exceptions:

(a) Where the length of an existing parcel exceeds the length to width ratio of any district of this Chapter by a factor of two (2) or more, the Review Authority for a subdivision may approve lots longer than the required length to width ratio as long as the existing lot width is not reduced by more than twenty-five (25) percent.

(b) The length to width ratio limitations of this Article and Chapter may be exceeded upon securing a major use permit in each case. The Review Authority approving such a request shall in addition to the findings of Section 51.4 find that strict adherence to this standard would result in increased environmental impacts or poor usability of resulting parcels, or physical features such as watercourses, ridges, and existing roads are to be utilized as boundaries.

SEC. 21-42.20 OFFICIAL SETBACK LINE

42.21 Purpose: These regulations are adopted to provide for adequate building setbacks from State highways and other roads in the County of Lake. **(Ord. No. 1749, 7/7/1988)**

42.22 Definitions (Ord. No. 1749, 7/7/1988):

(a) Master Plan of Streets and Highways means that certain portion of the General Plan of Lake County, California, which consists of a map and text, and shows the location of existing and proposed major thoroughfares in said County.

(b) Official setback lines refers to lines established as set forth in Section 42.20, and located at specified distance on either side of a line midway between the right-of-way, easement, or side property lines of any road, if there is no right-of-way or easement, the centerline of the traveled surface of said road, or any centerline established by resolution of the Board of Supervisors.

(c) Precise Plan means such rules and regulations as set forth in Section 42.20 of this Article and such other maps, rules, and regulations which are or may be adopted to protect and carry out the "Master Plan of Streets and Highways."

(d) Road means any street, way, lane, avenue, county road, road or state highway in the County of Lake.

(e) Structure means that which is built or constructed: an edifice or building of any kind, any piece of work, including swimming pools, retaining walls, stairways and any underground storage facility in excess of one thousand (1,000) gallons capacity; provided, however, "structure" shall not include: any structure or

building existing on the effective date of Section 42.20; public utility distribution lines; wells; septic tanks; trees, garden or agricultural crops; wire fences or similar fences which are largely transparent; solid fences under three (3) feet in height; structures established by governmental agencies; signs and movable awnings attached to the face of a building and projecting not more than eight (8) feet beyond the official setback line, provided that the lowest part of such sign or awning and all supporting members shall be not less than eight (8) feet above the ground immediately below.

42.23 Master Plan: There is hereby adopted a Master Plan of Streets and Highways, said plan being the Circulation Plan of the Lake County General Plan, consisting of the following parts of the Lake County General Plan:

(a) The Circulation Plan, Figure IV-11, page IV-47; and

(b) Lake County Road Standards, Table 10-9, page IV-48; and

(c) Pages IV-46 to IV-50.

42.24 Precise Plan: Based on said Master Plan, there is hereby adopted a Precise Plan of Streets and Highways. The following State highways and County roads, together with the official setback lines indicated below, are hereby declared to be the "Precise Plan" for roads and highways of the County of Lake:

Road Number	**Road Name**	**Official Setback Line** (Distance from centerline)
Hwy. 20	State Highway	50'
Hwy. 29	State Highway	50'
Hwy. 53	State Highway	50'
Hwy. 175	State Highway	50'
Hwy. 281	State Highway	50'
---	Bryant Road	50'
101	Butts Canyon Road	50'
104	Hartman	30'
107	Big Canyon Road	30'
111	Socrates Mine Road	50'
122	Spruce Grove Road	30'
137	Seigler Canyon Road	30'
140	Morgan Valley Road	50'
205	Lakeshore Drive	30'
209	North	30'
216	Sulphur Bank Drive	30'
219	Point Lakeview Road	30'
220	High Valley Road	25'
301	Elk Mountain Road	30'
303	Bartlett Springs Road	25'
304	Bachelor Valley Road	25'

304B	East Road	25’
304C	Witter Springs Road	25’
Road Number	**Road Name**	**Official Setback Line** (Distance from centerline)
311M	Mendenhall Avenue	30’
400	Lakeshore Boulevard	30’
400A	South Main Street	30’
401	Scotts Valley Road	30’
405B	Mathews Road	30’
407	Nice-Lucerne Cutoff	30’
411Xb	Park Way	30’
412	Highland Springs Road	30’
502	Soda Bay Road	30’
509	Gaddy Lane	30’
515	Bottle Rock Road	30’
515A	Harrington Flat Road	30’
515B	Sulphur Creek Road	30’
517E	Red Hills Road	30’
523	Seigler Springs North Road	30’
524	Argonaut Road	25’
525	Loch Lomond Road	30’
541	Big Valley Road	25’

42.25 Effect of Precise Plan:

(a) No structure shall hereafter be moved, erected or structurally altered so as to be closer to any road than the distance specified by the official setback lines established by Section 42.20.

(b) In the event that this Article imposes greater setbacks on certain properties than those imposed by the zoning regulations of the County of Lake or by building setback lines on any subdivision map, then the provisions of this Article applicable to setbacks on such properties shall apply.

(c) No official setback lines, as established herein, shall be interpreted as permitting any encroachment of any building structure, fence or any other device within any road right-of-way.

(d) The setback provisions of this Article shall not apply to structures built adjacent to any road in areas where the topography of land adjacent to the road is steeper than plus twenty (20) feet vertical per one hundred (100) feet of horizontal distance measured from the edge of the traveled way.

42.26 Community business district exception:

(a) The official setback lines of Section 42.20 may be lessened by the Planning Director in established community business districts along the highways and

roads identified in Section 42.26(b) when the Planning Director finds that any of the following conditions exist:

1. Existing development in the vicinity does not meet the requirements of the official setback line.

2. The development proposed will replace a building structure or use existing on the effective date of this Ordinance.

3. On properties not developed on the effective date of this Ordinance, adherence to the official setback line would substantially restrict the development potential of the property, and result in setbacks significantly greater than existing development on adjacent lots.

(b) Community business districts: In the following areas the official setback lines may be reduced to those of the base zoning district on both sides of the roads unless indicated otherwise:

1. On Hwy. 20:

i.	From 300 feet west of Mendenhall to 500 feet east of Government Street on the north side of Hwy. 20. **(Ord. No. 1897, 12/7/1989)**	Upper Lake
ii.	Foothill Drive to Country Club Drive.	Lucerne
iii.	From Sayre Avenue to Lakeshore Drive.	Nice
iv.	From Island Drive to High Valley Road and on the south side of Hwy. 20 from High Valley Road to Keys Blvd.	Clearlake Oaks

2.	On Hwy. 175: From Hwy. 29 to Big Canyon Road.	Middletown
3.	On Hwy. 53: From the junction of Hwys. 29 and 53 to 650 feet north on the west side and 1,100 feet on the east side. **(Ord. No. 1897, 12/7/1989)**	Lower Lake
4.	On Hwy. 29: From Hill Avenue to Wardlaw Street	Middletown
5.	On Morgan Valley Road: From Hwy. 53 to 300 feet east of Mill Street.	Lower Lake

42.27 Existing signs exception:

(a) Any sign existing on the effective date of Section 42.20., and not otherwise allowed by Section 42.22(e) of this Article, which sign is within any official setback line established herein, may be remodeled, reconstructed or replaced, provided that a

development review permit is first secured from the Development Review Committee subject to the following conditions:

1. No part of any sign shall encroach any further into the setback area than the existing sign.

2. The sign shall be removed by the owner thereof at no expense to the State of California, the County of Lake, or any other public agency, in the event that the area of encroachment is required for street widening or any other public purpose.

(b) Application for the development review permit required by this Section shall be accompanied by plans and drawings sufficient to demonstrate that the sign applied for shall not constitute a hazard to vehicular or pedestrian traffic.

(c) A decision of the Development Review Committee made pursuant to this Section may be appealed to the Planning Commission in accordance with the provisions of Section 58.10 et. seq. of this Chapter. **(Ord. No. 1749, 7/7/1988)**

EXHIBIT 110

STATE OF CALIFORNIA – THE RESOURCES AGENCY

GRAY DAVIS, *Governor*

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

May 10, 2001

Mr. Ronald E. Suess
President
Bottle Rock Power Corporation
725 Farmer's Lane, Suite 8
Santa Rosa, California 95405

Dear Ron:

Enclosed is a fully executed and approved copy of the "Purchase Agreement for Bottle Rock Power Plant and Assignment of Geothermal Steam Lease," dated April 5, 2001,

Sincerely,

Robert W. James
Staff Counsel

cc: James Hagan, Esq.
The Hagan Law Firm
A Law Corporation
350 Cambridge Avenue, Suite 150
Palo Alto, California 94306

Gene Varanini, Esq.
1201 K Street, Suite 1100
Sacramento, California 95814

PURCHASE AGREEMENT FOR BOTTLE ROCK POWER PLANT AND ASSIGNMENT OF GEOTHERMAL STEAM LEASE

This Purchase Agreement ("Agreement") is entered into as of the 5-7th day of April, 2001, (the "Effective Date") by an among **STATE OF CALIFORNIA, DEPARTMENT OF WATER RESOURCES** ("DWR" or "Seller") and **BOTTLE ROCK POWER CORPORATION, a California Corporation,** ("Buyer").

WITNESSETH

WHEREAS, Seller is the owner of that certain power plant (the "Bottle Rock Power Plant") and is the lessee of a geothermal steam field (the "Steam Field") located in the Known Geothermal Resource Area (the "Geysers") in Lake County, California which it constructed and which commenced operation in 1985 and ceased operating and was mothballed in 1990; and

WHEREAS, Seller desires to sell to Buyer and Buyer desires to purchase from Seller all of Seller's interest in and to the Bottle Rock Power Plant and Francisco Steam Field Lease as defined in 1.1(a) (ii); and

WHEREAS, the Bottle Rock Power Plant and Francisco Steam Field Lease are now no longer needed for the State Water Project operations and are maintenance burden on the SWP;

NOW, THEREFORE, in consideration of the premises, and for other good and valuable consideration, Buyer and Seller hereby agree as follows:

ARTICLE I

THE PURCHASED ASSETS

1.1 Sale and Purchase.

(a) On the terms and subject to the conditions hereinafter set forth, Seller does hereby agree to sell, convey, assign, transfer and deliver to Buyer on the Closing Date (as defined in Article II), and Buyer hereby agrees that Buyer shall purchase from Seller on the Closing Date, all of the interest of Seller in the following property (the "Purchased Assets"):

(i) The Bottle Rock Power Plant and all appurtenances thereto, including, but not limited to, the following: the steam turbine, electric generating units, gas removal system, air pollution abatement system, cooling tower condensers and transformers, all tools and equipment, spare parts for the equipment, steam wells and steam collection system, including all on substantially all of the items listed on the Schedule of Inventory attached hereto as Exhibit F, but without any warranty as to the accuracy or completeness of Schedule F.

(ii) Seller's rights and interests in and to that certain Geothermal Lease and Agreement dated February 25, 1975 (the "Francisco Steam Field Lease"), between Marjorie J. Francisco et al, and Geothermal Kinetics, Inc., recorded March 13, 1975, Book 789 Official

Records of Lake County, page 167, as assigned and amended from time to time.

(iii) Seller's rights to transmit over the collector lines (the "Generation Tie Transmission Lines" from the Bottle Rock Power Plant to the point of interconnection pursuant to that certain agreement between Seller and Pacific, Gas & Electric Company, dated October 2, 1981, as amended.

(iv) All of Seller's access rights over High Valley Road, Lake County, California.

(v) All transferable permits and governmental licenses for the operation and maintenance of the above-described facilities currently held by Seller.

(b) On the Closing Date, Buyer shall assume all obligations, debts and liabilities relating to or arising out of the Purchased Assets whether arising before or after the Closing Date, including without limitation all obligations and liabilities, (i) under Francisco Steam Field Lease, (ii) related to Generation Tie Lines, (iii) if any, to maintain and operate High Valley Road, and the gate at the junction of said road and Bottle Rock Road, (iv) under any permits or government license, and (v) with respect to environmental matters as provided in 7.1 subject only to the allocation of costs and expenses as provided in Sections 2.3.1 and 2.3.4 and Seller's obligations as provided in Section 7.2.

1.2 Transfer of Assets. Seller's interest in the Purchased Assets shall be sold, conveyed, assigned, transferred and delivered by Seller to Buyer by a Quitclaim Deed substantially in the form of Exhibit A, a Bill of Sale substantially in the form of Exhibit B hereto, and an Assignment of Geothermal Lease substantially in the form of Exhibit C hereto and by other appropriate instruments of transfer, bills of sale, endorsements and assignments as may be reasonably necessary, in form and substance reasonably satisfactory to Buyer and Seller, all to be delivered at Closing pursuant to Article VI.

1.3 Disclaimers.

(a) THE PURCHASED ASSETS ARE BEING SOLD AND SHALL BE TRANSFERRED TO BUYER "AS IS" AND "WHERE IS", AND EXCEPT FOR THE WARRANTIES AS TO TITLE AND OTHER MATTERS EXPRESSLY SET FORTH IN SECTION 3.7, SELLER DISCLAIMS ANY REPRESENTATION OR WARRANTY OF ANY KIND OR NATURE, EXPRESS OR IMPLIED, AS TO THE CONDITION, VALUE, OR QUALITY OF THE BOTTLE ROCK POWER PLANT, STEAM FIELD OR RELATED FACILITIES OR EQUIPMENT, AS OF THE CLOSING. **SELLER SPECIFICALLY DISCLAIMS ANY REPRESENTATION OR WARRANTY OF MERCHANTABILITY, USAGE, SUITABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE UNDER THE UNIFORM COMMERCIAL CODE OR OTHERWISE WITH RESPECT TO THE BOTTLE ROCK POWER PLANT AND STEAM FIELD, OR ANY PART THEREOF, OR AS TO THE WORKMANSHIP OR CONDITION THEREOF, OR THE ABSENCE OF ANY DEFECTS THEREIN, WHETHER LATENT OR PATENT, OR THAT**

SELLER HAS COMPLIED WITH ENVIRONMENTAL LAWS WITH RESPECT TO THE CONSTRUCTION, INSTALLATION, USE, MAINTENANCE OR OPERATION OF ALL OR ANY PART OF THE BOTTLE ROCK POWER PLANT OR STEAM FIELD. NO REPRESENTATIONS OR WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, HAVE BEEN MADE OR ARE MADE, AND NO RESPONSIBILITY HAS BEEN OR IS ASSUMED, BY SELLER OR BY A PERSON, FIRM, OR AGENT ACTING OR PURPORTING TO ACT ON BEHALF OF THE SELLER, AS TO THE CONDITION, REPAIR, OR FITNESS FOR USE OF THE FACILITIES OR AGREEMENT.

(b) SELLER FURTHER SPECIFICALLY DISCLAIMS ANY REPRESENTATION OR WARRANTY, WHETHER EXPRESS OR IMPLIED, WITH RESPECT TO (I) THE ACCURACY OR COMPLETENESS OF ANY RECORDS, FILES AND DOCUMENTS FURNISHED OR MADE AVAILABLE TO SELLER, (II) THE ENVIRONMENTAL CONDITION OF ALL OR ANY PART OF THE PURCHASED ASSETS, INCLUDING THE ABSENCE OF ANY HAZARDOUS SUBSTANCES, HAZARDOUS WASTES, HAZARDOUS MATERIALS OR OTHER CONTAMINATED MATERIALS ON, UNDER OR IN THE VICINITY OF THE BOTTLE ROCK POWER PLANT AND STEAM FIELD, (III) WHETHER SELLER HAS OBTAINED ALL PERMITS, LICENSES AND OTHER FORMS OF GOVERNMENTAL APPROVALS OR AUTHORIZATIONS NECESSARY OR CONVENIENT FOR THE CONSTRUCTION, INSTALLATION, OWNERSHIP, USE, MAINTENANCE AND OPERATION OF ALL OR ANY PART OF THE PURCHASED ASSETS, OR THAT ANY SUCH PERMITS HELD BY SELLER ARE VALID OR TRANSFERABLE FROM SELLER TO BUYER, AND (IV) WHETHER ANY THIRD

PARTIES HAVE ANY RIGHTS TO CONSENT TO THE TRANSFER OF ANY PART OF THE PURCHASED ASSETS.

(c) Buyer expressly acknowledges and accepts the disclaimers set forth in Sections 1.3(a) and 1.3(b), and further acknowledges its own opportunity and duty with respect to all or any part of the Purchased Assets (i) to inspect and investigate all or any part of such property, (ii) to verify the accuracy or completeness of any information provided by Seller, (iii) to investigate and examine all environmental matters and issues, (iv) to investigate all ownership and leasehold interests in or to the Purchased Assets, (v) to obtain or secure all permits and licenses or other forms of governmental approval or authorization necessary for Buyer to own, use, maintain, operate or decommission such property, including any approvals or consents necessary for the transfer of any such permits or licenses, and (vi) ascertaining and obtaining at Buyer's sole cost and expense any consents required for the transfer of such property.

ARTICLE II

PURCHASE PRICE AND PAYMENT

2.1 Purchase Price.

(a) The total purchase price for the Purchased Assets (the "Purchase Price") shall be the sum of One Million Eight Hundred Thousand Dollars ($1,800,000 U.S.) less such amounts (without interest) as Buyer has paid

under that certain Temporary Permit from DWR, dated November 9, 1999, and all of the extensions thereof that have been subsequently executed.

(b) Buyer shall pay the Purchase Price on the Closing Date, by wire transfer of immediately available funds to the location directed by Seller, or other means reasonably acceptable to Seller.

(c) Buyer also agrees that all power generated at the Bottle Rock Powerplant will be sold for use in the State of California.

2.2 Closing. The Closing is defined as the occurrence of the delivery of the Closing Documents, the Purchased Assets, and the Purchase Price. The Closing Date shall be as soon as possible after the execution hereof at a date and time to be mutually agreed to in writing by the Buyer and Seller, (the "Closing Date"), and the Closing will be at the office of Seller, 1416 Ninth Street, Sacramento, California 94236-0001, provided, however, in no event shall the Closing Date be later than June 1, 2001, (the "Outside Closing Date").

2.3 Closing Costs and Expenses; Allocations. Seller and Buyer have agreed upon the following allocations and responsibilities for making payment of taxes and fees and the costs of operation relating to the Purchased Assets:

2.3.1 Ad Valorem and Other Property Taxes. All ad valorem taxes, real property taxes, personal property taxes, assessments and similar obligations (and any refunds, credits and the like) relating to the Purchased Assets shall be apportioned between the parties here and shall be prorated (on the basis of a year of 365 days) as of the Closing Date. All such taxes with payment delinquent dates prior to the Closing Date shall be paid by Seller, and all such taxes with a delinquent date on or after the Closing Date shall be paid by Buyer.

2.3.2 Sales and Use Tax. All sales taxes, transfer taxes, use taxes and similar obligations arising from the sale or transfer by Seller to Buyer of all or any part of the Purchased Assets, if any, whether arising or assessed before or after the Closing Date, shall be paid by Buyer.

2.3.3 Filing Fees and Recording Costs. Buyer shall be solely responsible for all filings and recordings of any of the instruments of conveyance related to the sale or transfer of all or any part of the Purchased Assets, and for all fees, taxes and costs associated therewith, including, but not limited to, all documentary taxes, recording fees, escrow transfers and title insurance premiums. Seller shall not be liable to Buyer for any loss to Buyer arising from Buyer's failure to file or record documents correctly or promptly. Upon written request from Seller, Buyer shall promptly furnish Seller with all recording and filing information with respect to all of the instruments of conveyance recorded or otherwise filed by Buyer.

2.3.4 Allocation of Income and Costs of Operation. Subject to Section 1.1(b), all benefits, revenues, income, costs, expenses and charges associated with the ownership, use, maintenance and operation of the Purchased Assets which arise or are incurred on or after the Closing Date shall be for the account of Buyer, and all benefits, revenues, income, costs, expenses and charges which arose or were incurred before the Closing Date, shall be for the account of Seller. Buyer and Seller shall provide each other with necessary information and copies of records at reasonable times to the extent necessary to give effect to and confirm compliance with this Section 2.3.4, and shall otherwise cooperate in informing affected third parties with respect to said allocations. Any amounts owed to a party as a result of such allocation shall be paid within fifteen (15) days following the Closing Date.

2.4 Security for Decommissioning and Reclamation Liabilities. Buyer agrees to provide security in the form of a surety bond on or before the Closing Date from a firm acceptable to Seller in the initial amount of Five Million Dollars ($5,000,000). Said security is to provide a guarantee of payment of any sums required to meet Buyer's obligations under Section 7.1 (e) of this Agreement. Said security shall consist of a surety bond which meets the following requirements:

(a) Said surety bond shall be issued by an admitted surety insurer, as defined in subdivision (a) of Section 995 of the Code of Civil Procedure and substantially in the form of the attached Exhibit D.

Said security shall not be construed as a limitation on any obligation of Buyer to indemnify Seller. Said security shall be delivered to Seller at Closing. Every third year after Closing, or more often at the option of Seller or Buyer, Buyer shall submit to Seller for Seller's approval an independent engineering estimate of the cost to meet the obligations of Sections 7.1 (e) of this Agreement. If such estimate (as approved by Seller) exceeds Five Million Dollars ($5,000,000 U.S.), the Buyer shall promptly increase the security to cover the amount of the estimated cost plus twenty-five percent (25%). Buyer may reduce the amount of security to the estimated cost plus twenty-five percent (25%) if such estimated cost (as approved by Seller) has been reduced below the previous approved estimate by twenty-five percent (25%) or more. Such reduction shall provide that the amount of the security is at least twenty-five percent (25%) above the current approved estimate of cost. This security

shall remain in place until five (5) years after completion of all decommissioning at which time Buyer may terminate it, and any funds remaining shall be the property of Buyer, provided, however, if Seller receives a complete release of all liability under the Francisco Steam Field Lease, then Buyer may adjust the amount of the bond to the amount of an independent engineering estimate approved by Seller of the cost to decommission the Plant and Steam Field required to meet the requirements of the California Energy Commission, the County of Lake and any other regulatory agency with jurisdiction.

(b) Not more than once in any one year, upon 48 hours advance written notice by Seller to the Buyer, Seller may inspect the leasehold premises to determine whether or not there is any substantial hazardous substance contamination on the property from the operation of the Power Plant or Steam Field or any related facilities. If Seller finds any such contamination, Seller may require Buyer to cease any operations causing such contamination and to clean-up and remedy all such contamination in accordance with applicable legal standards. Seller shall not incur any liability as a result of the findings of any such inspection, regardless of whether or not it discovers any such contamination, notifies Buyer of the discovery any such contamination, or takes or fails to take any action with respect to such contamination that it discovers. No such inspection by Seller shall relieve the Buyer of any liability for any contamination hereunder or at law.

(c) The provisions of the first paragraph of this Section 2.4 notwithstanding, at closing and on a temporary basis, not to exceed one year, Buyer may elect in its discretion to substitute a letter of credit as the security required by this Section 2.4, provided, however;

(i) said letter of credit shall be in the same amount and shall have substantially the same terms and conditions as those specified above for the surety bond,

(ii) the form and content must be approved prior to closing and as a condition precedent to closing by Seller, and

(iii) the issuer of the letter of credit must be approved prior to closing and as a condition precedent to closing by Seller.

(iv) if for any reason the surety bond required by this Section has not been secured by the time of the termination of the temporary letter of credit, Buyer shall immediately commence to deposit 10 percent of its gross revenue each and every month into an escrow account to be established with an escrow agent acceptable to Seller and on terms and conditions to be approved by Seller as the required security. Said deposits shall continue until said escrow account has on deposit Five Million Dollars ($5,000,000 U.S.) at which time further deposits will cease. Provided, however, said escrow account shall be subject to the same adjustment provisions provided above for the surety bond. If the amount of required security is increased above the Five Million

Dollars ($5,000,000 U.S.), Buyer shall deposit additional funds in the escrow account at the same rate specified above until the new limit is reached. If the amount of security required is reduced to an amount less than Five Million Dollars ($5,000,000 U.S.). Buyer may withdraw from the escrow account the difference between the required security amount and the Five Million Dollars ($5,000,000 U.S.) amount. Buyer may at anytime substitute the above described surety bond in place of the escrow account and may then withdraw all funds from the escrow account.

2.5 Environmental Impairment Insurance Buyer shall at or prior to the Closing have purchased a policy of liability insurance, substantially in the form attached as Exhibit E which insures Seller and Buyer against all legally insurable liability referred to in Section 7.1(e) and 7.1(f) herein (excluding fines) ("Environmental Policy"). Said Environmental Policy shall not be, and shall not be construed to be, a limitation on any obligation of Buyer to indemnify Seller. Seller, its officers and employees shall be designated as co-named insureds on the Environmental Policy. The Environmental Policy's limits of liability shall not be less than ten million dollars ($10,000,000 U.S.). Such policy shall include, but not be limited to the following: (a) a provision that the insurer give a minimum of forty-five (45) days notice to Seller of any termination of coverage, (b) Buyer is the first named insured and is responsible for all reporting and premium payment obligations under the policy, (c) payment of all deductibles under the policy is the sole obligation of the first named insured, (d) that this contract between Buyer and Seller is listed as an "Insured Contract." An original

copy of the binder for such Environmental Policy shall be provided to Seller at Closing as a condition on precedent to closing, and an original copy of this policy shall be provided to Seller as soon as it is available. Said insurance shall be in effect at all times during operation and decommissioning of the Purchased Assets (or any part of thereof) and all facilities on the premises covered by the Francisco Steam Field Lease (the "Leased Premises"), including wells and gathering systems. Seller will not be responsible for payment of any premiums, assessments or deductibles on or under the Environmental Policy. In the event the insurance expires or is terminated Buyer shall provide to Seller at least thirty (30) days prior to such termination an original a copy of a new insurance policy that will be effective upon or prior to termination of the policy being terminated with coverage as provided herein. Should the Purchased Assets (or any material portion thereof) or the Leased Premises be transferred to another person or entity, the transferee(s) will be required to assume the Buyer's obligation to provide the foregoing insurance. If the Buyer or its transferee(s) fails to provide the foregoing insurance, Seller may, at its option, and without limiting such other rights as it may have, file suit to compel Buyer and/or such transferee(s) to provide or pay for such insurance, and compel or seek reimbursement from Buyer for any loss, damage or expense resulting therefrom.

2.6 Environmental Site Assessment. Prior to closing Buyer will contract with a qualified, independent consultant acceptable to Seller for an environmental site assessment satisfactory to Seller of the Bottle Rock Power Plant and Francisco Steam Field to determine what if any hazardous materials are present on the property. Seller shall reimburse Buyer for one-half of the

cost of this site assessment up to a maximum of fifty thousand dollars ($50,000 U.S.), said amount to be paid to Buyer at closing upon presentation of proper invoices.

ARTICLE III

REPRESENTATIONS AND WARRANTIES OF SELLER

As of the date of this Agreement and the Closing Date, Seller represents and warrants to Buyer as follows:

3.1 Due Organization. Seller is an agency of the State of California and has all requisite power and authority to enter into and perform this Agreement and each agreement executed by Seller in connection herewith.

3.2 Authorizations. Subject to receipt of the approvals referred to in Sections 6.2(d), (e) and (f), the execution and delivery of this Agreement and all other agreements, documents and instruments to be executed by Seller in connection herewith or pursuant hereto, and the consummation by Seller of the transactions contemplated hereby, have been duly authorized and approved by all appropriate actions of Seller and constitute the legal, valid and binding obligations and acts of Seller enforceable against Seller in accordance with their respective terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium or other similar laws of general application relating to or affecting the enforcement of creditors' right and by general equitable principles.

3.3 Compliance with Obligations. To Seller's knowledge, Seller has received no notices of default or claims that Seller is in material breach with respect to any lease or land rights comprising any part of the Purchased Assets.

3.4 Material Permit Violations. To Seller's knowledge, (i) Seller has not received any notice of any violation of any permit or permit condition for any permit or license relating to the Purchased Assets that remains unresolved, (ii) Seller has not received notice of any pending or threatened investigations or inquiries from any federal, state or local government agency having jurisdiction over the Purchased Assets for any failure to comply with applicable law relating to the Purchased Assets, (iii) Seller has not received notice of any order, decree, decision or requirement issued by any federal, state or local government agency having jurisdiction over all or any part of the Purchased Assets that would change or alter the use or operation of all or any material part of the Purchased Assets in any material respect form that which existed on the Effective Date.

3.5 Pending Proceedings. To Seller's knowledge, there are no suits, actions, proceedings, or investigations pending or threatened against or affecting Seller or any of its assets, which, if determined or resolved adversely to Seller, could (i) prohibit or restrain the performance of this Agreement or the consummation of the transactions contemplated by this Agreement, (ii) result in a judgment for damages by reason of this Agreement or the consummation of the transactions contemplated by this Agreement, or (iii) have a material adverse affect on Seller's title to all or any part of the Purchased Assets or the value thereof, or on the continued operation of the Bottle Rock Power Plant.

3.6 Broker's or Finder's Fees. The negotiations relating to this Agreement and the transactions contemplated hereby have been conducted on behalf of Seller in such manner as not to give rise to any claim against Buyer as a result of any act of Seller or otherwise for a finder's fee, brokerage commission, or other like payment to any person.

3.7 Title to Purchased Assets. Seller is the lawful owner of the Purchased Assets consisting of major equipment items and is the lessee under the Francisco Steamfield Lease, free and clear of any and all liens and encumbrances created by or through Seller, except (i) current taxes, if any, which may be due and payable but not yet delinquent which shall be prorated at closing, (ii) minor imperfections or conditions, none of which will materially detract from the value or materially impair the uses of the Purchased Assets.

3.8 No Pending or Threatened Environmental Claims. To Seller's knowledge, Seller has not received notice of any proceeding or inquiry commenced and pending or threatened by any federal, state or local government agency or by any private party against Seller relating to the Purchased Assets asserting a violation of any environmental law.

3.9 Delivery of Records. Subject to Section 1.3, Seller has delivered or made available to Buyer before the Closing Date all material maintenance records and other written information relating to the use, maintenance and operation of the facilities involved in this Agreement, to the extent such maintenance records and other written information are in the possession of Seller or have been received by Seller before the Closing Date.

3.10 Survival of Representations and Warranties. All of the representations and warranties contained in this Article III shall survive the execution and delivery of this Agreement and the Closing for a period of [eighteen (18) months], regardless of any investigation made by the parties hereto.

ARTICLE IV

REPRESENTATIONS AND WARRANTIES OF BUYER

As of the date of this Agreement and the Closing Date, Buyer represents and warrants to Seller as follows:

4.1 Due Organization. Buyer is a California corporation duly organized and validly existing and in good standing under the laws of the State of California, is duly qualified to do business, and is in good standing under the laws of the State of California.

4.2 Authorizations. Buyer has full power and authority to execute and perform this Agreement and each agreement executed in connection herewith in accordance with their terms. This Agreement and each Agreement executed in connection herewith constitutes the valid and binding obligations of Buyer enforceable in accordance with their respective terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium or other similar laws of general application relating to or affecting the enforcement of creditors' rights and by general equitable principles. The execution, delivery and performance of this Agreement by Buyer and all transactions contemplated hereby have been fully and validly authorized in accordance with applicable law.

4.3 Compliance with Obligations. Neither the execution and delivery of this Agreement, any other agreement executed by Buyer in connection herewith, nor the consummation of the transactions contemplated hereby, will (a) conflict with or constitute a breach or result in a violation of any of the terms and provisions of the articles of incorporation, by laws or other organizational documents of Buyer, (b) conflict with or constitute a breach of or

constitute a default under, or an event which (with or without notice or lapse of time or both) would be a breach of, or default under, or give rise to any right of termination or acceleration under, any existing loan agreement, or other agreement, instrument or undertaking to which Buyer is a party, or by which Buyer is bound, which would materially and adversely affect the ability of Buyer to perform its obligations under this Agreement or such other agreements, (c) constitute a violation of any law, regulation, judgment, order or decree applicable to Buyer or (d) require any consent, approval, action, authorization, order, license or permit from any federal, state, local, or other governmental authority or person having authority over Buyer.

4.4 Broker's or Finder's Fee. The negotiations relating to this Agreement and the transactions contemplated hereby have been conducted on behalf of Buyer in such manner to not to give rise to any claim against Seller as a result of any act of Buyer or otherwise for a finder's fee, brokerage commission, or other like payment to any person.

4.5 Pending Proceedings. To Buyer's knowledge, there are no actions, suits or proceedings pending or threatened against Buyer which, if decided unfavorably, could (i) prohibit or restrain the performance of this Agreement or the consummation of the transactions contemplated by this Agreement, (ii) result in a judgment for damages by reason of this Agreement or the consummation of the transactions contemplated by this Agreement, or (iii) have or may have a material adverse affect as to all or any part of the Purchased Assets or the value thereof, or the continued operation of the Bottle Rock Power Plant.

4.6 Bankruptcy. No petition in bankruptcy (voluntarily or otherwise), assignment for the benefit of creditors, or petition seeking reorganization or arrangement or other action under federal or state bankruptcy laws is pending or, to Buyer's knowledge, threatened against Buyer.

4.7 Buyer's Inspection. In making its decision to proceed with the purchase of the Purchased Assets, with the sole exception of the express representations and warranties of Seller set forth in Article 3, Buyer has relied solely on its own independent inspections and investigations of the Purchased Assets in full recognition of the disclaimers of Seller set forth in Section 1.3, and that there have been no other representations and warranties by or on behalf of Seller except as expressly set forth in Article 3. Buyer further acknowledges that Seller has provided it with access to all of the Purchased Assets and has satisfactorily responded to all questions of Buyer regarding the Purchased Assets.

4.8 Knowledge and Experience. Buyer and its owner and representatives have (i) designed and constructed, or caused to be designed and constructed, electrical generating power plants, (ii) evaluated for purchase and purchased electrical generating power plants that were designed, constructed and operated by others before being acquired by Buyer, and (iii) sufficient funds to purchase, operate and maintain the Purchased Assets, including sufficient funds for Decommissioning.

4.9 Survival of Warranties. All of the representations and warranties contained in this Article III shall survive the execution and delivery of this Agreement and Closing for a period of eighteen (18) months regardless of any investigation made by the parties hereto.

ARTICLE V

ADDITIONAL COVENANTS AND OBLIGATIONS OF PARTIES

5.1 Seller's Obligations Prior to Closing. Seller shall perform or otherwise comply with each of the following obligations and responsibilities during the period between the date of this Agreement and the Closing:

5.1.1 Notice Regarding Inaccuracies and Breaches. Seller shall promptly notify Buyer in writing if Seller becomes aware of (i) any fact or condition which makes untrue, or shows to have been untrue, any representation or warranty of Seller or Buyer, or (ii) Seller's failure in any material respect to perform or comply with any provision of this Agreement.

5.1.2 Access to Information. Seller shall provide Buyer with reasonable access to the Purchased Assets and all records, files and documents relating to the Purchased Assets; provided however that such access will be (i) provided with Seller's prior concurrence, (ii) accomplished in a manner designed to avoid any disruption in operations, and (iii) subject to Section 5.5.

5.1.3 Maintenance of the Purchased Assets. Seller shall maintain the Purchased Assets in their current "mothballed" condition as of the date of this Agreement, normal wear and tear excepted, in accordance with existing agreements and usual and customary prudent utility practices, and shall not utilize or transfer any spare parts or other controllable inventory comprising the Purchased Assets subsequent to the date of this Agreement for any purpose whatsoever other than in accordance with usual and customary prudent utility practices.

5.1.4 Certificate of Assets. Seller shall provide Buyer with certificate of Seller certifying the validity of its rights, title and interest to the Purchased Assets.

5.1.5 Other Actions. Seller shall undertake all other actions required of Seller under this Agreement as reasonably necessary to allow the transactions contemplated by this Agreement to close on the Closing Date, or as soon thereafter as is reasonably practicable.

5.2 Buyer's Obligations Prior to Closing. Buyer shall perform or otherwise comply with each of the following obligations and responsibilities during the period between the date of this Agreement and the Closing:

5.2.1 Notice Regarding Inaccuracies and Breaches. Buyer shall promptly notify Seller in writing if Buyer becomes aware of (i) any fact or condition which makes untrue, or shows to have been untrue, any representation or warranty of Seller or Buyer, or (ii) Buyer's failure in any material respect to perform or comply with any provision of this Agreement.

5.2.2 Permits and Consents. Buyer shall exercise commercially reasonable efforts to obtain (i) the transfer to Buyer of all Seller permits, licenses and other governmental approvals or authorizations comprising a part of the Purchased Assets that can legally be transferred to Buyer, (ii) all additional permits, licenses and other governmental approvals or authorizations necessary for Buyer to own, use, maintain and operate the Purchased Assets from and after the Closing, and (iii) any other required consents to the transfer from Seller to Buyer of all or any part of the Purchased Assets.

5.2.3 Other Actions. Buyer shall undertake all other actions required of Buyer under this Agreement as reasonably necessary to allow the transactions contemplated by this Agreement to close on the Closing Date, or as soon thereafter as is reasonably practicable.

5.3 Further Assurances.

(a) If at any time after the Closing Date further assignments, conveyances, or assurances in law are reasonably necessary to vest, perfect or confirm of record title to any of the Purchased Assets, or otherwise to carry out the provisions hereof, each party shall, upon the reasonable request of the other party, execute and deliver any and all deeds, assignments, powers of attorney and assurances in law, and to do all things reasonably necessary to vest, perfect or confirm title to such Purchased Assets, and otherwise to carry out the provisions hereof.

(b) Each party covenants and agrees to transfer and deliver to the other party, from time to time, any cash or other property, that such party may receive after the Closing Date in respect of any of the Purchased Assets which is attributable to the period in which the other party owned the Purchased Assets, including any amounts payable as interest in respect thereof.

5.4 Simultaneous Deliveries. All documents to be executed and delivered by the parties at the Closing shall be deemed to have been taken and executed simultaneously, and no documents shall be deemed executed or delivered until all have been executed and delivered.

5.5 Confidentiality. Each party and its representatives shall, pursuant to the provisions hereof, be privy to the valuable confidential and proprietary information of the other relating the purchase and sale of the Purchased Assets which has not been disclosed to any other person, firm, or corporation, except those under an obligation to retain it as confidential. Each party and its officers, directors, employees, attorneys, agents, representatives, and affiliates shall keep all such information of the other confidential until the Closing Date and, if this transaction does not close for any reason, whether or not for cause, on or before the Outside Closing Date, each party agrees promptly to return to the other all documentary information, notes, pictures and

drawings, and all copies thereof without retaining a copy. Neither party shall issue any press release or other publicity regarding this Agreement or the transaction contemplated hereby until two (2) business days shall have elapsed from the date a party shall have first furnished the other a copy of a draft thereof. Each party shall afford the other party the opportunity to comment on such publicity and, to the extent reasonably possible, shall accommodate the other party's comments. The foregoing provision of this Section 5.5 shall not apply to a disclosure required by applicable laws or governmental regulation.

5.6 Actions During Interim Period. Neither Seller nor Buyer shall take any action which would cause any of the representations and warranties made by Seller or Buyer in this Agreement not to be true and correct in all material respects and as of the Closing Date with the same force and effect as if made on and as of the Closing Date.

ARTICLE VI

CONDITIONS TO CLOSING

6.1 Conditions Precedent to Obligations of Buyer. The obligations of Buyer to consummate the transactions provided for in this Agreement are, at the option of Buyer, subject to the satisfaction of the following conditions as of the Closing Date, the compliance with which Buyer may waive in writing:

(a) Each of the representations and warranties of Seller contained in Article III hereof shall have been true and correct in all material respects when made, and shall be true and correct in all material respects, as of the Closing Date, with the same force and effect as if the same had been made on and as of the Closing Date;

(b) Seller shall not be in default on any of its obligations hereunder;

(c) No order of any court shall have been entered which enjoins or restrains the sale by Seller of any of the Purchased Assets to Buyer, nor shall any action be commenced, the resultant effect of which would be to enjoin and restrain the sale by Seller of any of the Purchased Assets to Buyer;

(d) The approval of the California Energy Commission and all other approvals and consents required from any federal, state or local government agency approving the transfer of the Purchased Assets from Seller to Buyer shall have been obtained on terms reasonably satisfactory to Buyer;

(e) All consents from third parties not a party to this Agreement required for the transfer of the Purchased Assets from Seller to Buyer, including but not limited to the Francisco Steamfield Lease, shall have been obtained on terms reasonably satisfactory to Buyer; and

(f) Seller shall have delivered, or caused to be delivered, to Buyer at the Closing the following:

(i) A Quitclaim Deed in the substantially in the form of Exhibit A. attached hereto, duly executed and acknowledged by Seller, conveying Seller's interest in High Valley Road to the Buyer;

(ii) A Bill of Sale in the form of Exhibit B attached hereto, duly executed by Seller;

(iii) A counterpart of the Assignment and Assumption Agreement in the form of Exhibit C attached hereto, duly executed by Seller.

(iv) A certificate of Seller certifying the validity of its interest to the Purchased Assets.

(v) A certificate of Seller certifying that each of the representation made by Seller herein are true and correct in all material respects as of the Closing Date and will have the same force and effect as if made on and as of the Closing Date.

(vi) Such other good and sufficient instruments of transfer and conveyance as may be reasonably necessary in form and substance reasonably satisfactory to Buyer and Seller, duly executed by Seller;

(vii) Written instructions for payment of the Purchase Price; and

(viii) Such other documents and instruments as may be reasonably necessary to effectuate the terms of this Agreement.

(ix) Payment for its share of the cost of the site assessment report secured under Section 2.6 of this Agreement.

(x) The Outside Closing Date shall not have occurred.

6.2 Conditions Precedent to Obligations of Seller. The obligations of Seller to consummate the transactions provided for in this Agreement are, at the option of Seller, subject to the satisfaction of the following conditions as of the Closing Date, the compliance with which Seller may waive in writing:

(a) Each of the representations and warranties of Buyer contained in Article IV hereof shall have been true and correct in all material respects, when made, and shall be true

and correct in all material respects as of the Closing Date, with the same effect as if the same had been made on and as of the Closing Date;

(b) Buyer shall not be in default on any of its obligations hereunder;

(c) No order of any court shall have been entered which enjoins or restrains the sale by Seller of any of the Purchased Assets to Buyer, nor shall any action be commenced, the resultant effect of which would be to enjoin and restrain the sale by Seller of any of the Purchased Assets to Buyer;

(d) The approval of the California Energy Commission and all other approvals and consents required from any federal, state or local government agency approving the transfer of the Purchased Assets from Seller to Buyer shall have been obtained on terms reasonably satisfactory to Seller;

(e) All consents from third parties not a party to this Agreement required for the transfer of the Purchased Assets from Seller to Buyer shall have been obtained on terms reasonably satisfactory to Seller;

(f) Seller shall have received the consent of the Department of General Services of the State of California to sell and transfer the Purchased Assets to Buyer;

(g) Buyer shall have delivered, or caused to be delivered, to Seller at the Closing, the following:

(i) The Purchase Price in accordance with Section 6. 1(g)(vi);

(ii) A counterpart of the Assignment and Assumption Agreement in the form of Exhibit C attached hereto, duly signed by Buyer.

(iii) Evidence of the insurance coverage required by Section 2.5.

(iv) The security required by Section 2.4 of this Agreement;

(v) A certificate of good standing of Buyer dated within thirty (30) days before closing, issued by the Secretary of State of California;

(vi) An incumbency and specimen signature certificate with respect to the authorized person of Buyer executing this Agreement and any other document delivered hereunder on behalf of Buyer; and

(vii) A certificate of Buyer certifying that each of the representations made by Buyer herein are true and correct in all material respects as of the Closing Date and will have the same force and effect as if made on and as of the Closing Date, and

(viii) A copy of the site assessment report secured under Section 2.6 of this Agreement.

(ix) Such other documents and instruments as may be reasonably necessary to consummate or effectuate the transactions contemplated by this Agreement; and

(h) The Outside Closing Date shall not have occurred.

6.3 Termination. This Agreement, and the obligations of the parties hereunder, may be terminated on or before the Closing Date (or other date, as specified below).

(a) By mutual written consent of Buyer and Seller;

(b) By Buyer, if the conditions set forth in Section 6.1 of this Agreement have not been met or have not been waived by Buyer by the required dates therefor, by delivering written notice thereof to Seller;

(c) By Seller, if the conditions set forth in Section 6.2 of this Agreement have not been met or have not been waived by Seller by the required dates therefor, by delivering written notice thereof to Buyer; or

In the event this Agreement is terminated pursuant to this Section 6.3, each party shall comply with their obligations respecting confidentiality contained in Section 5.5 of this Agreement and, except for the obligations of the parties respecting confidentiality contained in Section 5.5, neither party shall have any liability or further obligation to the other under this Agreement.

ARTICLE VII

POST CLOSING OBLIGATIONS

7.1 Buyer's Obligations. From and after the Closing Date, Buyer shall be solely responsible and liable for the following:

(a) All costs associated with the ownership, use, maintenance and operation of the Purchased Assets;

(b) Any personal injury or death or damage to any property directly or indirectly arising or resulting from the ownership, use, maintenance and operation of the Purchased Assets;

(c) Full performance and compliance with all of the provisions, conditions, limitations and requirements of all permits, licenses and other forms of governmental approvals and authorizations comprising the Purchased Assets and otherwise relating to the Purchased Assets;

(d) Full performance and full compliance with all provisions, covenants, conditions, restrictions, limitations, obligations and the like contained in any leases, licenses, easements, rights-of-way and other land rights comprising a part of the Purchased Assets;

(e) Full responsibility and sole obligation for Decommissioning the Bottle Rock Power Plant, Francisco Steam Field and for all site restoration, including any restoration and remediation obligations associated with any land rights comprising the Purchased Assets;

(f) All environmental liability of any kind or nature, including fines, damages associated with injuries to persons or property, costs of investigation, response costs, abatement costs, penalties and the like, and responsibility for all environmental cleanup and remediation of every kind and character associated in any way with the Purchased Assets, regardless of whether the same (i) arose prior to Closing or arises subsequent to Closing, (ii) was caused by Seller or Seller's agents, including without limitation the active or passive negligence, gross negligence, recklessness, willful misconduct or illegal conduct of or attributable to Seller or Seller's agents, (iii) is suffered or asserted by Buyer or any third parties, either private or governmental, or (iv) is asserted under Federal or State statutory or common law, environmental or otherwise, now in effect or hereafter amended or enacted; and

(g) Filing of all appropriate forms, declarations and/or bonds with federal, state and local governmental agencies as required relative to Buyer's assumption of the ownership, use, maintenance and operation of the Purchased Assets, all at Buyer's sole cost and expense.

7.2 Seller's Obligations. From and after the Closing Date, Seller shall be solely responsible and liable for the following:

(a) Any costs associated with the ownership, use and maintenance of the Purchased Assets prior to Closing, except for costs associated with environmental liabilities assumed by Buyer pursuant to Section 7.1;

(b) Any personal injury or death or damage to any property other than the Purchased Assets occurring prior to Closing that directly or indirectly resulted from the ownership, use, maintenance or operation of the Bottle Rock Power Plant prior to Closing, except with respect to environmental liabilities assumed by Buyer pursuant to Section 7.1;

(c) All liability directly resulting from any hazardous substances, hazardous wastes, hazardous materials or other contaminated materials as defined by environmental law that were once located on, generated at, or were a part of the Purchased Assets but were removed and transferred (by means other than migration) by or on behalf of Seller prior to Closing to an off-site location that is not part of the Purchased Assets; and

(d) Delivery to Buyer on or promptly after Closing of all files, records and documents concerning the Purchased Assets that Seller is obligated to make available to Buyer pursuant to Section 5.1, including, but not limited to, work orders and original mylar "as built" drawings to the extent Seller has such items in its possession. Buyer shall maintain such files, records and documents for a period of five (5) years following the Closing; provided, however, Buyer may be relieved of such obligation in whole or in part by providing written notice to Seller of its desire to divest itself of such files, records and documents and providing to Seller a reasonable opportunity, but not less than thirty (30) days to take possession of the same.

ARTICLE VIII

INDEMNIFICATIONS

8.1 Indemnification by Buyer. Buyer shall indemnify Seller and its officers and employees and each of its successors and assigns, and hold such parties harmless from, against and in respect of any and all costs, losses, claims, liabilities, fines, penalties, damages and expenses (including interest which may be imposed in connection therewith, and court costs and reasonable fees and disbursements of counsel) incurred by any of them:

(a) Attributable to any state of facts or events occurring or arising on or after Closing with respect to the Purchased Assets;

(b) Arising from any material breach of any of the representations and warranties of Buyer or of any covenant or agreement of Buyer in this Agreement or any document delivered in connection with the transactions contemplated hereby; and

(c) Attributable to or arising out of environmental liabilities assumed by Buyer in Section 7.1 of this Agreement, whether occurring or arising before or after the Closing.

8.2 Indemnification by Seller. Subject to the provisions of Water Code Section 11454, Seller shall indemnify Buyer and its officers and employees and each of its successors and assigns, and hold such parties harmless from, against and in respect of any and all costs, losses, claims, liabilities, fines, penalties, damages and expenses (including interest which may be imposed in connection therewith, and court costs and reasonable fees and disbursements of counsel) incurred by any of them:

(a) Arising from any material breach of any of the representations and warranties of Seller or of any covenant or agreement of Seller in this Agreement or any document delivered in connection with the transactions contemplated hereby; and

(b) Attributable to or arising out of environmental liabilities assumed by Seller pursuant Section 7.2(c) of this Agreement.

8.3 Right to Defend, Etc. Within a reasonable time after the written assertion against any party entitled to indemnification pursuant to Section 8.1 or 8.2 of this Agreement (an "Indemnified Party") by a third person of a claim or liability which would entitle the Indemnified Party to indemnification under Section 8.1 or 8.2, as the case may be, the Indemnified Party shall give written notice of the claim to the party obligated to indemnify it (the "Indemnifying Party"). Failure to give such notice, or delay materially prejudicial to the interests of the Indemnifying Party, shall relieve the Indemnifying Party of any obligation of indemnification with respect to such claim or liability. Upon receipt of timely notice, the Indemnifying Party shall undertake the responsibility for the defense of such claim, at its own expense. The Indemnified Party shall have the right to participate at its own expense and through counsel of its own choosing in contesting and defending against any such claim and in any litigation, proceedings, or settlement negotiations with respect thereto. If, within fifteen (15) days after delivery of the notice of claim by the Indemnified Party, the Indemnifying Party fails to advise the Indemnified Party of its agreement to contest and defend against any such claim, or if the Indemnifying Party does not participate in such litigation, proceeding or settlement negotiations, for any reason, then the Indemnified Party shall have the right, at the Indemnifying Party's expense, to take such action as the Indemnified Party deems appropriate to defend, contest, settle or compromise any such claim

or liability, and the Indemnifying Party agrees to be bound by any and all rulings, judgments, compromises, and settlements reached by the Indemnified Party in good faith, in the same manner as if the Indemnifying Party participated therein.

8.4 Payment. The Indemnifying Party agrees to reimburse each Indemnified Party pursuant to this Article VIII within thirty (30) days after presentation of an itemized statement of damages incurred by such Indemnified Party, provided the Indemnified Party has first complied with Section 8.3 hereof.

8.5 Settlement. Except as provided in Section 8.3, no Indemnified Party shall be entitled to indemnification under this Article VIII if such Indemnified Party voluntarily makes any payment in respect of, settles or offers to settle, or consents to any compromise or admits liability with respect to, any third party claim without the prior consent (which consent shall not be unreasonably withheld) of the Indemnifying Party.

ARTICLE IX

LIMITATION OF LIABILITY

9.1 Consequential Damages. Except for damages awarded to third parties which are covered by the express indemnification obligations of the parties hereunder, in no event shall either Seller or Buyer be liable to the other party, either individually or jointly and irrespective of whether alleged to be as a result of breach of contract, breach of warranty, tort liability (including negligence), strict liability, or any other legal theory, and whether arising before or after Closing, for special, indirect, consequential, punitive or exemplary damages of any nature whatsoever.

ARTICLE X

MISCELLANEOUS

10.1 Survival. All representations and warranties shall survive the Closing Date as set forth above. The provisions of Sections 2.1(c), 2.4 and 2.5 shall survive the Closing Date until the later of completion of Decommissioning and the expiration of Buyer's indemnity obligations. The covenants and agreements for indemnification set forth herein shall survive the Closing Date and for a period of five years (5) after the completion of all decommissioning.

10.2 Successors and Assigns. This Agreement shall inure to the benefit of Buyer and Seller and shall be binding upon the parties hereto, their respective successors, administrators and assigns. Notwithstanding the foregoing, neither this Agreement nor any interest therein, may be assigned by Buyer to any person, firm or entity without the prior written consent thereto of Seller and any attempted assignment without such consent shall be void and a breach of this Agreement. In addition, any transferee's of Buyer (or any transferees of such transferees) shall assume all obligations of Buyer that survive the closing, including without limitation the obligations under Section 2.4, 2.5, 7.1 and 8.1) hereof.

10.3 Waivers. The waiver of any breach of any term or conditions of this Agreement shall not be deemed a waiver of any other or subsequent breach, whether of like or different nature.

10.4 Time of Essence. The parties acknowledge and agree that time is of the essence in the performance of this Agreement.

10.5 Bulk Sale Law. Buyer and Seller each waive compliance by the other under any applicable bulk sale or similar law.

10.6 Definitions and Captions. As used herein, all capitalized terms shall have the meanings ascribed to them in this Agreement (such meanings to be equally applicable to both singular or plural form of the term defined). Captions and headings used in this Agreement are for convenience only and do not in any way effect, limit, amplify or modify the terms or provisions hereof.

10.7 Notices. Any notice required or permitted hereunder shall be in writing and shall be valid and sufficient when (i) delivered personally, (ii) five (5) days after it is deposited in the United States mail as registered or certified, return receipt requested, postage prepaid, or (iii) upon receipt when delivered by reputable overnight courier (e.g. Federal Express or DHL), and addressed to the other party as follows or to such other address as specified in writing after closing:

If to Seller:	Director Department of Water Resources 1416 Ninth Street P.O. Box 942836 Sacramento, CA 94236-0001
If to Buyer:	Ronald E. Suess, President Bottle Rock Power Corporation. 725 Farmer's Lane, Suite 8 Santa Rosa, CA 95405

10.8 Applicable Law. This Agreement is executed in California and shall be governed by and construed in accordance with the internal laws of the State of California without giving effect to conflicts of law principles.

10.9 Choice of Forum. The parties hereto agree and intend that the proper forum for any litigation of any disputes or controversies arising out of or related to this Agreement shall be the appropriate courts of the State of California located in the County of Sacramento.

10.10 Interpretation. This Agreement shall be construed in accordance with its fair meaning and neither for nor against either party. Each party acknowledges that it has been advised by counsel of its choosing in the premises.

10.11 Attorneys' Fees. If either party files any action or brings any arbitration proceeding against the other arising out of this Agreement, or is made a party to any action or proceeding brought by any third party in connection herewith, then as between Buyer and Seller, the prevailing party shall be entitled to recover as an element of its costs of suit, and not as damages, reasonable attorneys' fees to be fixed by court at trial and on appeal or by the arbitration panel. The "prevailing party" shall be the party who is entitled to recover its costs of suit whether or not a suit proceeds to final judgment. A party not entitled to recover its costs shall not recover attorneys' fees. No sum for attorneys' fees shall be counted in calculating the amount of a judgment for purposes of determining whether a party is entitled to its costs or attorneys' fees.

10.12 Severability. If any provision of this Agreement is held to be illegal, invalid, or unenforceable under present or future laws effective during the term hereof, such provision shall be fully severable; this Agreement shall be construed and enforced as if such illegal, invalid, or unenforceable provision had never comprised a part hereof, and the remaining provisions of this agreement shall remain in full force and effect and shall not be affected by the illegal, invalid, or unenforceable provision or by its severance from this Agreement.

10.13 Entirety. This Agreement, together with the Exhibits hereto, embodies the entire agreement and understanding among the parties and supersedes all prior agreements and understandings, if any, relating to the subject matter hereof Exhibits and Schedules referred to herein are incorporated by this reference.

10.14 Amendments. This Agreement may be amended only by an instrument in writing executed by Buyer and Seller and approved by the California Department of General Services and supplemented only by documents delivered or to be delivered in accordance with the express terms hereof.

10.15 Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original but all of which together shall constitute one and the same instrument.

10.16 Expenses of Transaction. Whether or not the transactions contemplated hereby are consummated, each of the parties hereto shall pay its own expenses (including attorneys' fees) in connection with the negotiation and delivery of this Agreement and the consummation of the transactions contemplated hereby.

SIGNATURES ARE ON NEXT PAGE

IN WITNESS WHEREOF, the parties hereto, intending to be legally bound, have executed this Agreement as of the day and year set forth above.

SELLER:

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

By: _____
Director

Approved for Form and Sufficiency

_____
Chief Counsel

BUYER:

BOTTLE ROCK POWER CORPORATION

By: _____
As President

APPROVED
Department of General Services

By
Assistant Chief
Real Estate Services Division

LIST OF EXHIBITS

Exhibit A	Quitclaim Deed
Exhibit B	Bill of Sale
Exhibit C	Assignment of Steam Field Lease
Exhibit D	Surety Bond
Exhibit E	Environmental Insurance Policy
Exhibit F	Schedule of Inventory

RECORDING REQUESTED BY

WHEN RECORDED MAIL TO:

DEPARTMENT OF WATER RESOURCES
Division of Land and Right of Way
Real Estate Branch
1416 9th Street, Room 425
Sacramento, California 95814

SPACE ABOVE THIS LINE FOR RECORDER'S USE

1-040-01, 07, 08, 11, 24, 27, 28, 29,43, 44
-47, 13-003-01, 13-049-01, 02, 03, 04, 05, 07, 08

DIRECTOR'S QUITCLAIM DEED

(HIGH VALLEY ROAD)
Project BOTTLE ROCK POWER PLANT

Parcel No. GT-6-A, GT-7-A, GT-8-A, GT-9-A, GT-10-A, GT-11-A, GT-12-A, GT-13-A, GT-13-B, GT-14-A, GT-15-A, GT-16-A, GT-17-A, GT-17-B, GT-18-A, GT-19-A, GT-20-A, and GT-22-A
Maps GN-51A-0002, 0002-1,0003, and 0004

The STATE OF CALIFORNIA, acting by and through its Director of Water Resources, quitclaims to

Bottle Rock Power Corporation, a California corporation.

all that real property in County of Lake,

State of California, described as:

DWR Parcel No.	Area	Estate
GT-6-A	0.38 acre	Nonexclusive easement and right of way with the right to construct, reconstruct, improve, and maintain a roadway
GT-7-A	0.17 acre	"
GT-8-A	0.17 acre	"
GT-9-A	0.08 acre	"
GT-10-A	0.16 acre	"
GT-11-A	0.07 acre	"
GT-12-A	0.14 acre	"
GT-13-A	0.13 acre	"
GT-13-B	0.41 acre	"
GT-14-A	0.10 acre	"
GT-15-A	1.40 acres	"
GT-16-A	0.19 acre	"
GT-17-A	0.12 acre	"
GT-17-B	0.03 acre	"
GT-18-A	0.07 acre	"
GT-19-A	0.11 acre	"
GT-20-A	0.17 acre	"
GT-22-A	0.003 acre	"
	3.903 acres	

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Parcels described as follows:

Those nonexclusive perpetual easements and rights of way for High Valley Road, being in the unincorporated area of the County of Lake, State of California, and described in the EASEMENT DEEDS to the State of California, Department of Water Resources, listed as follows:

GT-6-A (DWR Parcel No. GT-6)
Recorded June 8, 1981
Book 1093, Page 217, Official Records of said Lake County
0.38 acre.

GT-7-A (DWR Parcel No. GT-7)
Recorded June 8, 1981
Book 1093, Page 125, Official Records of said Lake County
0.17 acre.

GT-8-A (DWR Parcel No. GT-8)
Recorded October 7, 1982
Book 1152, Page 469, Official Records of Lake County
0.17 acre.

GT-9-A (DWR Parcel No. GT-9)
Recorded July 6, 1981
Book 1097, Page 93, Official Records of Lake County
0.08 acre.

GT-10-A (DWR Parcel No. GT-10)
Recorded June 12, 1981
Book 1094, Page 302, Official Records of Lake County
0.16 acre.

GT-11-A (DWR Parcel No. GT-11)
Recorded May 6, 1981
Book 1088, Page 369, Official Records of Lake County
0.07 acre.

GT-12-A (DWR Parcel No. GT-12)
Recorded June 8, 1981
Book 1093, Page 212, Official Records of Lake County
0.14 acre.

GT-13-A (DWR Parcel No. GT-13)
Recorded August 27, 1981
Book 1104, Page 263, Official Records of Lake County
0.13 acre.

GT-13-B (DWR Parcel No. GT-13, Unit B)
Recorded August 27, 1981
Book 1104, Page 263, Official Records of Lake County
0.41 acre.

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GT-14-A (DWR Parcel No. GT-14)
Recorded August 19, 1981
Book 1103, Page 277, Official Records of Lake County
0.10 acre.

GT-15-A (DWR Parcel No. GT-15)
Recorded June 2, 1981
Book 1092, Page 366, Official Records of Lake County
1.40 acres.

GT-16-A (DWR Parcel No. GT-16)
Recorded November 6, 1981
Book 1113, Page 677, Official Records of Lake County
0.19 acre.

GT-17-A (DWR Parcel No. GT-17, Unit A)
Recorded June 25, 1981
Book 1095, Page 678, Official Records of Lake County
0.12 acre.

GT-17-B (DWR Parcel No. GT-17, Unit B)
Recorded June 25, 1981
Book 1095, Page 678, Official Records of Lake County
0.03 acre.

GT-18-A (DWR Parcel No. GT-18)
Recorded July 16, 1981
Book 1099, Page 70, Official Records of Lake County
0.07 acre.

GT-19-A (DWR Parcel No. GT-19)
Recorded June 2, 1981
Book 1092, Page 375, Official Records of Lake County
0.11 acre.

GT-20-A (DWR Parcel No. GT-20)
Recorded March 23, 1982
Book 1128, Page 185, Official Records of Lake County
0.17 acre.

GT-22-A (DWR Parcel No. GT-22)
Recorded September 18, 1981
Book 1107, Page 200, Official Records of Lake County
0.003 acre.

Said parcels contain a total area of 3.903 acres, more or less.

LICENSED LAND SURVEYOR
W. E. WELLS
4762
EXP. 9-30-03
STATE OF CALIFORNIA

OCT 2 1 2000

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Subject to all liens and encumbrances of record.

The Director of Water Resources has determined that the said real property was acquired for State water development purposes, is no longer necessary, and is not being used for water development purposes.

The conveyance is executed pursuant to the authority vested in the Director of Water Resources by law.

Dated _____,20___

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

DIRECTOR OF WATER RESOURCES

STATE OF CALIFORNIA
COUNTY OF SACRAMENTO }SS.

On _____20 ____, before me, _____

personally appeared _____

personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

(Seal)

_____
NOTARY PUBLIC IN AND FOR THE STATE OF CALIFORNIA

Exhibit "B"

BILL OF SALE

KNOW ALL MEN BY THESE PRESENTS:

THAT THE STATE OF CALIFORNIA, DEPARTMENT OF WATER RESOURCES (SELLER) of the sum of One Dollar ($1.00) and for other good and valuable consideration paid to it by Bottle Rock Power Corporation, a California corporation, ("Buyer"), the receipt and sufficiency of which is hereby acknowledged, do hereby convey and sell to Buyer, its successors and assign, certain equipment pursuant to the Purchase Agreement for Bottle Rock Powerplant and Assignment of Geothermal Lease dated _____, 2001 ("Agreement") and subject to the terms and conditions contained therein, being more specifically describe as follows:

The Bottle Rock Power Plant and all of the appurtenances thereto, including but not limited to the following: the steam turbine, electric generating unit, gas removal system, abatement system, cooling tower condensers, transformers and all tools and equipment, space parts for equipment, steam wells, steam collection system, and all other buildings and equipment related to the steam field ("Facilities").

TO HAVE AND TO HOLD the same unto said Buyer, its successors and assigns forever.

SELLER, BY THIS INSTRUMENT, MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, EXCEPT (1) THAT SELLER WARRANTS THAT IT HAS GOOD AND MARKETABLE TITLE TO THE FACILITIES AND THAT SAID FACILITIES WILL BE FREE AND CLEAR OF ANY AND ALL LIENS AND ENCUMBRANCES ON THE CLOSING DATE, EXCEPT AS PROVIDED IN THE AGREEMENT.

FURTHER, SELLER MAKES NO WARRANTY AS TO THE MERCHANTABILITY OR FINES FOR ANY PARTICULAR PURPOSE OF SAID FACILITIES, IT BEING UNDERSTOOD THAT BUYER IS PURCHASING THE SAID FACILITIES ON AN "AS-IS" AND "WHERE IS" BASIS.

By acceptance hereof, Buyer assumes all risk of loss relating to the said Facilities howsoever arising, after the date hereof except as specifically provided in the Agreement. Buyer will hold Seller harmless from losses, damages, claims, liabilities and expenses, including legal fees, arising out of the ownership, leasing or use of the said Facilities in accordance in it's obligations under the Agreement.

Notwithstanding anything herein to the contrary, this Bill of Sale and the conveyances contemplated hereby are and shall be deemed to be on and subject to all of the terms and conditions of the Agreement. Nothing herein shall reduce, limit, impair or supersede any of the representations, warranties, covenants, obligations rights or remedies of either party under the Agreement shall control.

In the event of legal action to enforce or interpret this Bill of sale or any provision thereof, the prevailing party shall be entitled to recover its reasonable attorney's fees and costs form the other party.

This Bill of Sales shall inure to the benefit of, and shall be binding upon, the parties hereto and their respective successors and assigns.

This Bill of Sale shall be governed by the laws of the State of California.

IN WITNESS WHEREOF, SELLER has caused this instrument to be executed by its duly authorized representatives as of this ____ Day of _____, 2001.

SELLER

STATE OF CALIFORNIA,
DEPARTMENT OF WATER RESOURCES

By:_____
Director

ACCEPTED:

BUYER

BOTTLE ROCK POWER CORPORATION

By:_____
President

Exhibit C

ASSIGNMENT OF GEOTHERMAL LEASE

STATE OF CALIFORNIA)

) SS

COUNTY OF SACRAMENTO)

KNOW ALL PERSONS BY THESE PRESENTS, that for good and valuable consideration, the receipt, sufficiency and adequacy of which is hereby acknowledged, the California Department of Water Resources (DWR), and agency of the State of California, does hereby sell, transfer, assign, and convey to Bottle Rock Power Corporation, a California Corporation, (Bottle Rock Power), its successors and assigns all of its right, title and interest as lessee or successor lessee under that certain Geothermal Lease and Agreement granted on February 25, 1975 by Marjorie J. Francisco, Margaret Hodges, formerly Margaret Stewart, Valentine R. Coleman, Vera Boriak, Victor V. Coleman, Florence M. Miles, and Franklin D. Coleman, as recorded on March 13, 1875 at page 167 of Book 789 of the official records of the Recorder of Lake County, California, as assigned and amended from time to time in and to that certain property described on Attachment 1 of this Assignment.

This Assignment is subject to all of the terms and provisions of the above-referenced lease, to all existing royalties, overriding royalties and other burdens to which said lease is presently burdened, and to all other matters of record affecting said lease. Bottle Rock Power, its successors and assigns hereby assumes and agrees to

perform all the obligations, agreements, duties, and covenants, express or implied, imposed upon DWR as to said lease.

The terms and provisions of this assignment shall be binding upon and inure to the benefit of DWR and BOTTLE ROCK POWER, their heirs, successors and assigns.

IN WITNESS WHEREOF, DWR AND BOTTLE ROCK POWER. Have executed this instrument on this _____ Day of _____, 2001.

BOTTLE ROCK POWER

By:_____

CALIFORNIA DEPARTMENT OF WATER RESOURCES, AN AGENCY OF THE STATE OF CALIFORNIA

By:_____
Thomas M. Hannigan
Director

[Signatures must be acknowledged by a Notary.]

Attachment 1

To

ASSIGNMENT OF GEOTHERMAL LEASE

DATED _____, 2000

Francisco Lease Description

Lands:

Township 11 North, Range 8 West, M.D.M., Lake County, California.

Parcel 1:

Section 5: Lots 5,6, 9 and 10 of said Section.

Parcel 2:

Section 6: Lot 10 of said Section:

EXCEPTING THEREFROM the following:

Beginning at the Southwest corner of Lot 10 and running North 608.6 feet; thence east 715 feet; thence South 608.6 feet; and thence Westerly 715 feet to the place of the beginning.

Parcel 3:

Section 5: N-1/2 of SW-1/4 of said Section 5.

Section 6: N-1/2 of SE-1/4 of said Section 6.

Containing a total of 350 acres, more or less.

SURETY BOND

KNOW ALL PERSONS BY THESE PRESENTS THAT THE UNDERSIGNEDS ATTEST TO THE FOLLOWING:

Bottle Rock Power Corporation, 725 Farmer's Lane, Suite 8, Santa Rosa, California 95405, a corporation organized and existing under the laws of the State of California, as PRINCIPAL, and Surety Company, whose address is _____, organized and existing under the laws of the State of _____ and licensed to do business in the State of California, as SURETY, are held and firmly bound unto the California Department of Water Resources (OBLIGEE) in the penal sum of Five Million Dollars ($5,000,000 USD) for the payment of which we hereby bind ourselves, our successors, and assigns.

Whereas, the above named PRINCIPAL has entered into the Purchase Agreement for Bottle Rock Power Plant and Assignment of Geothermal Steam Lease ("Purchase Agreement") with OBLIGEE and has compelled itself to fulfill and to complete the obligations as stated in Sections 2.4 and 7.1(e) of said Purchase Agreement;

Whereas, a demand has been made upon PRINCIPAL by OBLIGEE in the Purchase Agreement for security to insure compliance by the PRINCIPAL with the obligations of said Purchase Agreement, and this surety bond is executed and tendered in accordance with the provisions of the Purchase Agreement which is an Insured Contract hereunder;

Whereas, PRINCIPAL has chosen to file this performance surety bond as a guarantee that the decommissioning of the Bottle Rock Power Plant and related facilities and the reclamation of the land used or disturbed during the geothermal operations will be completed as required by Sections 2.4 and 7.1(e) of said Purchase Agreement;

Whereas, the SURETY and their successors and assigns agree to guarantee the obligation and to indemnify the OBLIGEE from the failure of the PRINCIPAL to complete the decommissioning of the Bottle Rock Power Plant and related facilities and reclamation of the land used or disturbed during the geothermal operations in conformity with Sections 2.4 and 7.1(e) as specified in the Purchase Agreement, not to exceed the maximum amount of the penal sum of this bond;

Whereas, SURETY, as part of the obligation secured by this bond, agrees that costs and reasonable expenses and fees, including reasonable attorney fees incurred by OBLIGEE in successfully enforcing such obligation against SURETY, all to be taxed as costs and included in any judgement rendered, shall be included in the penal sum specified in this bond;

Whereas, obligations guaranteed by this surety bond shall be in effect for the lands described in the Geothermal Steam Lease which are subject to Section 7.1(e) upon which operations by PRINCIPAL will have been conducted;

THE TERMS AND CONDITIONS OF THIS SURETY BOND ARE:

1. If PRINCIPAL faithfully completes all obligations set forth in Section 7.1(e) of the Purchase Agreement and all conditions contained therein, then this bond obligation shall be void; otherwise, it will remain in full force and effect as follows:

(a) beginning on the date of the Closing of the Purchase Agreement between PRINCIPAL and OBLIGEE and extending until all decommissioning and reclamation work pursuant to Section 7.1(e) has been completed; or

(b) beginning on the date of the Closing of the Purchase Agreement between PRINCIPAL and OBLIGEE and continuing until the bond is released or replaced with OBLIGEE's approval;

(c) beginning on the date of the Closing of the Purchase Agreement between PRINCIPAL and OBLIGEE and continuing until the bond is replaced with OBLIGEE's approval by another form of security.

2. The failure of PRINCIPAL to fulfill the obligations specified in Purchase Agreement Sections 7.1(e) shall result in forfeiture of this surety bond according to the instructions of this document and obligate SURETY to perform its bond commitments within thirty (30) days of the forfeiture for the benefit of the OBLIGEE.

3. The amount of SURETY's liability hereunder may be adjusted as provided in Section 2.4 of said Purchase Agreement, which adjustment may be reflected by the use of an Increase Rider or a Decrease Rider.

4. The SURETY hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the obligations as stated in Sections 7.1(e)) of the Purchase Agreement, or any other provision of the Purchase Agreement, or to the work to be performed thereunder or the specifications accompanying the same, or the acceptance or retention by OBLIGEE of additional security for such obligations, or the agreement by OBLIGEE to subordinate, compromise or release any such security, or the release by OBLIGEE of PRINCIPAL of any part of all its liability under such Sections 7.1(e) or the acceptance, substitution or release of one or more guarantors, endorsers or sureties, shall in any way affect SURETY's obligation on this bond, and SURETY does hereby waive notice of any such change, extension of time, alteration, addition or

other matters, and all rights under Section 2845 of the Civil Code of California and agree that they are not a condition precedent to SURETY's obligations hereunder. SURETY authorizes OBLIGEE at any time in its discretion to reasonably alter any of the terms of the Reclamation Plan, to take and to hold any additional or substituted security for PRINCIPAL's obligations thereunder and to subordinate, compromise, or release any security, to release PRINCIPAL of its liability for all or any part of the work or performance required under the Reclamation Plan, to release, substitute, or add any one or more guarantors, endorsers, or sureties, and to assign this surety bond in whole or in part.

5. SURETY hereby waives:

(a) Any defense of exoneration based on any impairment of SURETY's rights or remedies against PRINCIPAL, including any rights of subrogation;

(b) All rights, liabilities and defenses based on any legal disability of PRINCIPAL or any discharge or limitation of the liability of the PRINCIPAL to OBLIGEE, whether consensual or arising by operation of law, or by reason of any bankruptcy, insolvency or debtor-relief proceeding, or from any other cause or defense, including without limitation any claim of disability, offset, demand or defense that PRINCIPAL may assert or claim under the Purchase Agreement;

(c) All rights, including those arising under Section 2809 of the California Civil Code, to reduce SURETY's obligation in proportion to any reduction in the obligations of PRINCIPAL so that OBLIGEE shall at all times have first dollar coverage under this surety bond;

(d) All rights, including rights under Section 2845 of the California Civil Code, to require OBLIGEE to pursue PRINCIPAL, any other person, any other security that OBLIGEE may hold, or any other remedy whatsoever before proceeding against SURETY hereunder;

(e) All rights of reimbursement or subrogation, all rights to enforce any remedy that OBLIGEE or SURETY may have against PRINCIPAL, and all rights to participate in any security held by OBLIGEE with respect to PRINCIPAL's obligations, but only until all amounts and performance required under Section 7.1(e) of the Purchase Agreement have been paid or performed in full.

(f) Any obligation of OBLIGEE to advise SURETY of the financial condition of PRINCIPAL or any other circumstances affecting PRINCIPAL's ability to perform its obligations under Sections 7.1(e) of the Purchase Agreement, and;

(g) Presentment, diligence, demand, protest, dishonor, and any notices thereof or of nonpayment, or any other notices of any kind except as expressly set forth herein.

6. SURETY'S obligations hereunder are independent and separate of those of PRINCIPAL, and OBLIGEE may demand performance by SURETY and may bring a separate action against SURETY without first exhausting any security or remedy against PRINCIPAL or exercising any other right or remedy under the Purchase Agreement or first pursing or exhausting any other security for the obligations of or remedy against PRINCIPAL,

PROVIDED, HOWEVER, subject to the provisions of Section 5(e) above and after all amounts and performance required under Sections 7.1(e) and 7.1(f) of the Purchase Agreement have been indefensibly paid or performed in full, SURETY shall be subrogated to the rights of OBLIGEE against PRINCIPAL, including the right to enforce any remedy that OBLIGEE may have against PRINCIPAL, and to participate in any security held by OBLIGEE with respect to PRINCIPAL's obligations which has not been applied by OBLIGEE to the satisfaction of amounts owed or performance due by PRINCIPAL to OBLIGEE and which OBLIGEE in its discretion has determined that it does not need to retain to secure any other amounts or performance owed or owing by PRINCIPAL to OBLIGEE.

7. The SURETY will give prompt notice to the PRINCIPAL and the OBLIGEE of any notice received or action filed alleging the insolvency of the SURETY, or alleging any violations or regulatory requirements which would result in suspension or revocation of the SURETY'S license to do business.

8. In the event that the SURETY becomes unable to fulfill its obligations under this surety bond for any reason, notice shall be given immediately to the PRINCIPAL and the OBLIGEE.

9. Upon the incapacity of the SURETY by reason of bankruptcy, insolvency, or suspension or revocation of its license, the PRINCIPAL shall be deemed to be without bond coverage and subject to enforcement actions by OBLIGEE. No termination, cancellation or expiration of this surety bond for any reason whatsoever, including for nonpayment of premiums, shall be valid or effective unless OBLIGEE has received not less than thirty (30) days prior written notice thereof: In addition:

(a) If SURETY or OBLIGEE serves written notice of SURETY's incapacity to perform to PRINCIPAL and OBLIGEE, the PRINCIPAL shall within fifteen (15) working days of said written notice submit a letter of credit or a replacement surety bond assuming all liabilities hereof and in an amount no less than the penal sum hereof which shall

be satisfactory to OBLIGEE, or the PRINCIPAL shall be subject to enforcement actions by OBLIGEE; and;

(b) If, at the time that the written notice described in Section 9(a) above is given, either all work required under the Reclamation Plan has not been fully and finally completed or PRINCIPAL fails to provide the letter of credit or replacement surety bond as provided in Section 9(a) above, PRINCIPAL shall immediately and without further notice be deemed to be in default of its obligations thereunder, and OBLIGEE shall be entitled to immediately make demand under this surety bond for the payment and performance of all uncompleted obligations and requirements of the Reclamation Plan, and;

(c) PRINCIPAL shall in all events remain liable for all work and workmanship performed, obligations under, and liabilities incurred in connection with Section 7.1(e) of the Purchase Agreement;

10. No delay or failure by OBLIGEE to exercise any right or remedy against PRINCIPAL or SURETY will be construed as a waiver of that right or remedy. All such rights or remedies are cumulative, but SURETY's liability hereunder shall not exceed the penal sum hereof. The obligations hereunder are subject to waiver, release, or amendment only by OBLIGEE, acting alone and in writing. No waiver, release, or amendment of any provision hereof is effective without the written consent of OBLIGEE.

11. If any provision of this surety bond is determined by a court or other forum of competent jurisdiction to be invalid or unenforceable, such provision shall not affect the validity or enforceability of any other provision.

12. This surety bond shall be governed by California law. The prevailing party in any action brought under or arising out of this surety bond shall be entitled to its reasonable attorney's fees. Any action brought hereunder shall be brought in the state or federal courts located in Sacramento, California.

IN WITNESS WHEREOF, the seal and signature of PRINCIPAL and SURETY are hereto affixed and attested to by their duly authorized officials on the dates set forth below.

Dated: _____	Dated: _____
SURETY	BOTTLE ROCK POWER CORPORATION
By _____	By _____

Title: _____ as President

SEAL SEAL

Exhibit E

AIG Environmental™
Two Rincon Center
121 Spear Street
San Francisco, CA 94105
415.836.2700
415.836.3149/3150 (Fax)

March 28, 2001

Deborah Potts
ABD Insurance Services
765 Baywood Drive, #340
Petaluma, CA 94954

RE: BOTTLEROCK POWER CORPORATION
COMMERCIAL POLLUTION LEGAL LIABILITY
PRELIMINARY BINDER

Dear Debbie:

The following is our proforma binder confirmation for the above referenced insured for sudden and gradual pollution conditions, offered using the American International Specialty Lines Insurance Company form # 72385(1/00.) **No coverage is afforded or bound by this preliminary binder.** A separate binder will be issued upon receipt of an order to bind coverage.

Policy Period: April 16, 2001 to April 16, 2006 (These dates are contingent upon receipt of an order to bind)

Policy Number: **Draft**

Limits of Liability	Deductible	5 Yr. Premium
$10,000,000 Each Incident $10,000,000Aggregate Limit	$25,000	$137,592

Note: The premiums do not include surplus lines taxes and fees.
Note: The limits are shared throughout the policy period and are not reinstated.

Commission: 10%

Waste Disposal Retrodate: not covered
Note: If the Insured has this exposure and wishes to purchase this coverage, please notify the underwriter prior to binding This coverage will need to be underwritten and subject to an AP.

I. THE FOLLOWING COVERAGES ARE AUTOMATICALLY PROVIDED WITHIN THE COMMERCIAL POLICY FORM:

- Onsite cleanup costs of pollution conditions discovered by the Insured at an Insured's property. A third-party claim does not have to be made for onsite cleanup coverage to apply.
- Coverage for preexisting onsite and offsite exposures

- Third-party claims for bodily injury, property damage, and cleanup costs from pollution conditions. Coverage includes onsite and offsite exposures.

- Defense within the limits

- PIER II Free Value-Added Service

  NEW FOR 2000: In order to facilitate an immediate response to our facility Insured's significant pollution incidents, AIG Environmental now includes the **Pollution Incident and Environmental Response Program** (PIER II). To report an emergency response incident, AIG Environmental Insureds can call a Toll-free number 7-days-a-week, 24-hours-a-day.

  PIER II provides the following benefits to the Insured:

  - Rapid notification through the Toll-free Telephone Number;
  - A nationwide network of Emergency and Secondary Response Companies;
  - Helps Insureds respond quickly and effectively to emergencies;
  - Offers Insureds access to an advisory board composed of industry experts; and
  - Assists in minimizing the cost and duration of an environmental accident.

  It is a fact that in environmental emergencies, the first hours are the most critical in trying to minimize property damage and environmental harm. **PIER II** gives the Insured the ability to initiate the emergency response with one phone call, thus potentially saving thousands of dollars. **PIER II** is provided ***at no additional cost to the Insured.*** It's part of AIG Environmental's commitment to our insured to provide the best products and service.

This preliminary binder does not specify all the terms and conditions of the PLL Commercial Policy. Please read the insurance policy to familiarize yourself with our coverage provisions.

II. THE FOLLOWING ENDORSEMENTS WILL APPLY:

- If a multi-year option is chosen, the Minimum Earned Premium Endorsement will apply (25% at binding and 100% at first anniversary). #73579 (9/99)

- The Natural Resource Damage Endorsement will apply. This endorsement specifically includes coverage for natural resource damage under the definition of Property Damage. #76006 (5/00)

- The Aggregate Deductible Endorsement Each Incident Maintenance Deductible will apply. #72389 (12/98)

Aggregate Deductible:	$75,000
Each Maintenance Deductible:	$10,000

- The Incident Reporting Endorsement will apply. #73379 (7/99)

- The Change In Material Use of Insured Properties Exclusion Endorsement will apply. #73417 (8/99)

- The Named Insured Endorsement will apply naming State of California Department of Water Resources. #63305 (8/95)

- The Schedule of Insured Contracts Endorsement will apply. #72320 (7/00)

  -Purchase Agreement For Bottlerock Power Plant And Assignment of Geothermal Steam Lease

  Note: Coverage will be subject to receipt and review of the final signed contract within fifteen (15) days of binding. Any changes made to the contract is subject to review, and coverage under this endorsement may be denied.

III. THE ABOVE INDICATION IS SUBJECT TO THE FOLLOWING:

- Receipt and review of the following within five (5) days of binding.

  1) An original signed and completed Pollution Legal Liability Application

  2) An AIG Telephone Survey, conducted by AIG Environmental. (completed 1/25/01)

The premium, terms, and conditions outlined in this letter may be amended based on the information obtained from the application and phone survey.

- 1999-2000 financial statements within five (5) days of binding.

- We reserve the right to conduct a site assessment, by AIG Environmental Management, at our cost, during the policy period.

Upon reciept of an order to bind the policy will be issued by American International Specialty Lines Agency, Inc., which is a member of American International Group and is not covered by the State Guarantee Association. The carrier will be American International Specialty Lines Insurance Company, a member of the AIG group.

If coverage is bound, the premium must be remitted to American International Surplus Lines Agency, Inc., within thirty (30) days of the effective date of the policy, or within fifteen (15) days of billing, whichever is later. It is your responsibility to follow the surplus lines laws of the applicable state, and in particular to see that the appropriate premium tax is collected and paid.

Please note that coverage is not bound or afforded by this preliminary binder. In order to bind coverage we must receive a written order to bind. Please call with your comments or questions. I appreciate the opportunity to work on this account with you.

Regards,

Pauline Lowe
Middle Market Risk Analyst
AIG Environmental - San Francisco Region

A Member Company
of American International Group, Inc.

AMERICAN INTERNATIONAL
SPECIALTY LINES INSURANCE COMPANY
A Capital Stock Insurance Company
(herein called the Company)
175 Water Street, Twelfth Floor
New York, New York 10038

COMMERCIAL POLLUTION LEGAL LIABILITY

DECLARATIONS

NOTICE: THIS IS A CLAIMS-MADE AND REPORTED POLICY - PLEASE READ CAREFULLY. THE LIMIT OF LIABILITY AVAILABLE TO PAY JUDGMENTS OR SETTLEMENTS SHALL BE REDUCED BY AMOUNTS INCURRED FOR LEGAL DEFENSE. AMOUNTS INCURRED FOR LEGAL DEFENSE SHALL BE APPLIED AGAINST THE DEDUCTIBLE AMOUNT.

POLICY NUMBER: DRAFT

Item 1: NAMED INSURED: BOTTLEROCK POWER CORPORATION
ADDRESS: 725 FARMERS LANE, SUITE 11
SANTA ROSA, CA 95405

Item 2: POLICY PERIOD: FROM APRIL 16, 2001 TO APRIL 16, 2006
(THESE DATES ARE CONTINGENT UPON RECEIPT OF AN ORDER TO BIND)
12:01 A.M. Standard Time at the address of the Named Insured shown above

Item 3: LIMITS OF LIABILITY, up to : $ 10,000,000 Each Incident
$ 10,000,000 Policy Aggregate

Item 4: DEDUCTIBLE: $ 25,000 Each Incident

Item 5: POLICY PREMIUM: $ 137,592

Item 6: WASTE DISPOSAL RETROACTIVE DATE: NOT COVERED

Broker: ABD INSURANCE SERVICES
765 BAYWOOD DRIVE, SUITE #340
PETALUMA, CA 94954

AUTHORIZED REPRESENTATIVE
or countersignature (in states where applicable)

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FORMS SCHEDULE

Named Insured: BOTTLEROCK POWER CORPORATION

Policy No.: PLC DRAFT

Effective 12:01 A.M.: APRIL 16, 2001

Endorsement Number	Form Name	Form Number/ Edition Date
	Declarations Page	72384
	Notice of Loss	
	Policy	72385
1	Minimum Earned Premium	73579
2	Natural Resource Damage	76066
3	Aggregate Deductible	72389
4	Incident Reporting	73379
5	Change in Material	73417
6	Named Insured(s)	66305
7	Schedule of Insured Contracts	72320

ENDORSEMENT NO. 1

This endorsement, effective 12:01AM, APRIL 6, 2001

Forms a part of Policy No: PLC DRAFT

Issued to: BOTTLEROCK POWER CORPORATION

By: American International Specialty Lines Insurance Company

MINIMUM EARNED PREMIUM ENDORSEMENT

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY

It is hereby agreed that the following minimum earned premiums will apply when providing multi-year programs.

Binding Coverage	Minimum Premium Earned	25%
First Anniversary	Minimum Premium Earned	100%

Cancellation of the Policy during the first year will be subject to a return premium on a pro-rata basis after applying the minimum premium earned. The premium will be 100% earned at the first anniversary of the effective date of the Policy.

All other terms, conditions and exclusions shall remain the same.

AUTHORIZED REPRESENTATIVE
or countersignature (in states where applicable)

ENDORSEMENT NO. 2

This endorsement, effective 12:01AM, APRIL 6, 2001

Forms a part of Policy No: PLC DRAFT

Issued to: BOTTLEROCK POWER CORPORATION

By: American International Specialty Lines Insurance Company

NATURAL RESOURCE DAMAGE ENDORSEMENT

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY

1. It is hereby agreed that Section III. DEFINITIONS, paragraph O., Property Damage, is deleted in its entirety and replaced with the following:

   O. Property Damage means:

   (1) Physical injury to or destruction of tangible property of parties other than the Insured, including the resulting loss of use or value thereof;

   (2) Loss of use, but not loss of value, of tangible property of parties other than the Insured that has not been physically injured or destroyed; and

   (3) Natural Resource Damage.

   Property Damage does not include Clean-Up Costs.

2. The following is added to Section III. DEFINITIONS:

   Natural Resource Damage means physical injury to or destruction of, including the resulting loss of value of, land, fish, wildlife, biota, air, water, groundwater, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States (including the resources of the fishery conservation zone established by the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.)), any state or local government, any foreign government, any Indian tribe, or, if such resources are subject to a trust restriction on alienation, any member of an Indian tribe.

All other terms, conditions and exclusions shall remain the same.

AUTHORIZED REPRESENTATIVE
or countersignature (in states where applicable)

ENDORSEMENT NO. 3

This endorsement, effective 12:01AM, APRIL 6, 2001

Forms a part of Policy No: PLC DRAFT

Issued to: BOTTLEROCK POWER CORPORATION

By: American International Specialty Lines Insurance Company

AGGREGATE DEDUCTIBLE ENDORSEMENT
EACH INCIDENT MAINTENANCE DEDUCTIBLE

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY

1. It is hereby agreed that the following is added to the Declarations, Item 4:

Aggregate Deductible	Each Incident Maintenance Deductible
$75,000	$10,000

2. Section IV. LIMIT OF LIABILITY AND DEDUCTIBLE, Paragraph C., is deleted in its entirety and replaced with the following:

C. Subject to Paragraphs A. and B. above, this Policy is to pay covered **Clean-Up Costs** or **Loss**, as the case may be, in excess of the Deductible amount stated in Item 4 of the Declarations, up to but not exceeding the "Each Incident" limit of liability. Once the **Named Insured** pays deductible amounts which in the aggregate equal the amount shown in the Declarations, Item 4, "Aggregate Deductible"as shown above, the Deductible-Each Incident will no longer apply but will be subject to an incident Maintenance Deductible as shown above. The Deductible amount applies to all **Clean-Up Costs** or **Loss** arising from the same, related or continuous **Pollution Conditions**.

The **Insured** shall promptly reimburse the Company for advancing any element of **Clean-Up Costs** or **Loss** falling within the Deductible.

All other terms, conditions and exclusions remain the same.

AUTHORIZED REPRESENTATIVE
or countersignature (in states where applicable)

ENDORSEMENT NO. 4

This endorsement, effective 12:01AM,	APRIL 6, 2001
Forms a part of Policy No:	PLC DRAFT
Issued to:	BOTTLEROCK POWER CORPORATION
By:	American International Specialty Lines Insurance Company

INCIDENT REPORTING ENDORSEMENT

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY

It is hereby agreed that the following is added to Section VI. NOTICE REQUIREMENTS AND CLAIM PROVISIONS:

D. NOTICE OF POSSIBLE CLAIM

1. If during the **Policy Period**, the **Insured** first becomes aware of **Pollution Conditions** which it reasonably expects may result in **Clean-Up Costs** or a **Claim**, the **Insured** may provide written notice to the Company during the **Policy Period** containing all the information required under paragraph 2) below. Any **Claim** subsequently made against the **Insured** and reported to the Company within five (5) years after the end of the **Policy Period** of this policy or any continuous, uninterrupted renewal thereof, shall be deemed to have been first made and reported during the **Policy Period** of this policy. Such **Claim** shall be subject to the terms, conditions and limits of coverage of this policy.

2. It is a condition precedent to the coverage afforded by this clause that written notice under paragraph 1) above contain all of the following information: (a) the cause of the **Pollution Conditions**; (b) the **Insured Property** upon which the **Pollution Conditions** took place; (c) the **Bodily Injury**, **Property Damage** or **Clean-Up Costs** which has resulted or may result from such **Pollution Conditions**; (d) the **Insured(s)** which may be subject to the **Claim** and any potential claimant(s); (e) all engineering information available on the **Pollution Conditions** and any other information that the Company deems reasonably necessary; and (f) the circumstances by which and the date the **Insured** first became aware of the potential **Claim**.

All other terms, conditions and exclusions shall remain the same.

AUTHORIZED REPRESENTATIVE
or countersignature (in states where applicable)

ENDORSEMENT NO. 5

This endorsement, effective 12:01AM, APRIL 6, 2001

Forms a part of Policy No: PLC DRAFT

Issued to: BOTTLEROCK POWER CORPORATION

By: American International Specialty Lines Insurance Company

CHANGE IN MATERIAL USE OF INSURED PROPERTY(IES) EXCLUSION

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY

It is hereby agreed that the following exclusion is added to Section II. EXCLUSIONS:

arising from a material change in use of the **Insured Property(ies)**.

All other terms, conditions and exclusions shall remain the same.

AUTHORIZED REPRESENTATIVE
or countersignature (in states where applicable)

ENDORSEMENT NO. 6

This endorsement, effective 12:01AM,	APRIL 6, 2001
Forms a part of Policy No:	PLC DRAFT
Issued to:	BOTTLEROCK POWER CORPORATION
By:	American International Specialty Lines Insurance Company

NAMED INSURED(S) ENDORSEMENT

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY

It is hereby agreed that the following entity(ies) is (are) included as Named Insured(s), in Item 1 of the Declarations, but solely as respects liability arising out of the ownership, operation, maintenance or use of the Insured Property(ies) designated in Item 5 of the Declarations. The first Named Insured, if any, previously designated in Item 1 of the Declarations shall remain unchanged as such.

NAMED INSURED(S)

State of California Department of Water Resources

All other terms, conditions and exclusions remain the same.

AUTHORIZED REPRESENTATIVE
or countersignature (in states where applicable)

ENDORSEMENT NO. 7

This endorsement, effective 12:01AM,	APRIL 6, 2001
Forms a part of Policy No:	PLC DRAFT
Issued to:	BOTTLEROCK POWER CORPORATION
By:	American International Specialty Lines Insurance Company

SCHEDULE OF INSURED CONTRACTS

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY

It is hereby agreed that the following are scheduled as Insured Contracts to this policy:

INSURED CONTRACTS

Purchase Agreement for Bottlerock Power Plant and Assignment of Geothermal Steam Lease (Note: Coverage will be subject to receipt and review of the final signed contract within fiften (15) days of binding. Any changes made to the contract is subject to review, and coverage under this endorsement may be denied.

All other terms, conditions and exclusions remain the same.

AUTHORIZED REPRESENTATIVE
or countersignature (in states where applicable)

AMERICAN INTERNATIONAL SPECIALTY LINES INSURANCE COMPANY
(A Capital Stock Company, herein called the Company)
175 Water Street, Twelfth Floor
New York, New York 10038

COMMERCIAL POLLUTION LEGAL LIABILITY POLICY

THIS IS A CLAIMS MADE AND REPORTED POLICY. THIS POLICY HAS CERTAIN PROVISIONS AND REQUIREMENTS UNIQUE TO IT AND MAY BE DIFFERENT FROM OTHER POLICIES THE INSURED MAY HAVE PURCHASED. DEFINED TERMS APPEAR IN BOLD FACE TYPE.

In consideration of the payment of the premium, in reliance upon the statements in the Declarations and Application made a part hereof and subject to all the terms of this Policy, the Company agrees with the **Named Insured** as follows:

I. INSURING AGREEMENTS

A. To pay **Clean-Up Costs** on behalf of the **Insured**, on or under the **Insured Property**, if such **Clean-Up Costs** are sustained solely by reason of the discovery by the **Insured** during the **Policy Period** of **Pollution Conditions** on or under the **Insured Property**, provided:

1. The discovery of such **Pollution Conditions** is reported to the Company in writing during the **Policy Period** or within thirty (30) days thereafter by the **Insured** and in accordance with Section VI. of the Policy;

   Discovery of such **Pollution Conditions** happens when any director or officer or any employee with management responsibility of the **Insured**, or in the case of a proprietorship or partnership, an owner or general partner, becomes aware of **Pollution Conditions**; and

2. Such **Pollution Conditions** have been reported to the appropriate governmental agency in compliance with applicable **Environmental Laws**, in effect as of the date of discovery.

B. To pay **Loss** on behalf of the **Insured** that the **Insured** is legally obligated to pay as a result of **Claims** first made against the **Insured** and reported to the Company, in writing, during the **Policy Period**, or during the **Extended Reporting Period** if applicable, for **Bodily Injury**, **Property Damage** or **Clean-Up Costs** resulting from **Pollution Conditions**.

C. To have the right and the duty to defend any **Claims** as described in Paragraph B. above. The Company's duty to defend or continue defending, and to pay any **Loss**, shall cease once the applicable limit of liability, as described in Section IV., "Limit of Liability and Deductible," has been exhausted. Defense costs, charges and expenses, are included in the definition of **Loss** as described in Section III. "Definitions," Paragraph K., reduce the applicable limit of liability, as described in Section IV., and are included within the Deductible amount shown in Item 4 of the Declarations.

II. EXCLUSIONS

This insurance does not apply to **Clean-Up Costs** or **Claims**:

A. arising from **Pollution Conditions** existing prior to the inception date of this Policy and not disclosed in the application for this Policy, if any **Responsible Insured** knew or reasonably could have expected that

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such **Pollution Conditions** could give rise to **Clean-Up Costs** or a **Claim** under this Policy.

B. due to or for any punitive, exemplary or the multiplied portion of multiple damages, or any civil or administrative fines, penalties or assessments, except where such damages, fines, penalties or assessments are insurable by applicable law; or any criminal fines, penalties or assessments.

C. arising under any worker's compensation, unemployment compensation or disability benefits law or similar law.

D. due to **Bodily Injury** to an employee of the **Insured** or its parent, subsidiary or affiliate arising out of and in the course of employment by the **Insured** or its parent, subsidiary or affiliate; however this exclusion does not apply to liability assumed under an **Insured Contract**.

E. arising as a result of liability of others assumed by the **Insured** under any contract or agreement, unless the liability of the **Insured** would have attached in the absence of such contract or agreement or the contract or agreement is an **Insured Contract**.

F. for **Property Damage** to goods or products manufactured, sold, handled or distributed by the **Insured** arising out of such goods or products or any part thereof, or due to **Property Damage** to work performed by, or on behalf of the **Insured** arising out of the work or any portion thereof.

G. arising from **Pollution Conditions** that result from an intentional or illegal act or omission of a **Responsible Insured**, if he or she knew or reasonably could have expected that **Pollution Conditions** would result.

H. arising from **Pollution Conditions** based upon or attributable to a **Responsible Insured's** intentional, willful or deliberate noncompliance with any statute, regulation, ordinance, administrative complaint, notice of violation, notice letter, executive order, or instruction of any governmental agency or body.

I. for costs, charges or expenses incurred by the **Insured** for goods supplied or services performed by the staff or salaried employees of the **Insured**, or its parent, subsidiary or affiliate, except if in response to an emergency or pursuant to **Environmental Laws** which require immediate remediation of **Pollution Conditions**, or unless such costs, charges or expenses are incurred with the prior written approval of the Company in its sole discretion.

J. for **Property Damage** to property at any time owned, leased, rented, occupied or loaned to the **Insured**.

K. arising from the presence of asbestos or any asbestos-containing materials or lead-based paint installed or applied in, on or to any building or other structure.

L. arising out of **Waste Disposal Activities** which took place prior to the Waste Disposal Retroactive Date stated in Item 6 of the Declarations.

M. arising out of professional services performed or rendered by the **Named Insured**, including but not limited to, recommendations, opinions and strategies rendered for architectural, consulting and engineering work, such as drawings, designs, maps, reports, surveys, change orders, plan specifications, assessment work, remedy selections, site maintenance equipment selection, and supervisory, inspection or engineering service.

N. arising from the **Insured's Products** after possession of such **Insured's Products** have been relinquished to others by the **Insured** or others trading under its name.

O. by any **Insured** against any other person or entity who is also an **Insured** under this Policy.

P. arising from **Pollution Conditions** resulting from any **Identified Underground Storage Tank** unless satisfactory integrity test results (Company approved method) are received and approved by and are on

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file with the Company, and such Identified Underground Storage Tanks are scheduled in the Policy by endorsement.

Q. for **Property Damage** to any **Automobile**, rolling stock, **Vessel** or aircraft utilized during the transportation of the **Insured's Products** or **Waste**. This exclusion does not apply to **Claims** arising from the **Insured's** negligence.

R. arising from **Pollution Conditions** at any property the **Insured** first acquires, leases, rents or occupies after the inception date of this Policy, unless coverage for such property is specifically endorsed to this Policy.

S. arising from **Pollution Conditions** at any property owned, leased, rented or occupied by the **Insured**, which the **Insured** sold, leased, gave away, abandoned or relinquished operational control prior to the inception date of this Policy.

III. DEFINITIONS

A. **Automobile** means a land motor vehicle, trailer or semi-trailer licensed for travel on public roads, including any machinery or apparatus attached thereto.

B. **Bodily Injury** means physical injury, or sickness, disease, mental anguish or emotional distress sustained by any person, including death resulting therefrom.

C. **Claim** means a written demand received by the **Insured** seeking a remedy and alleging liability or responsibility on the part of the **Insured** for **Loss**.

D. **Clean-Up Costs** means expenses, including reasonable and necessary legal expenses incurred with the Company's written consent, incurred in the investigation, removal, remediation including monitoring, or disposal of soil, surfacewater, groundwater or other contamination:

(1) to the extent required by **Environmental Laws**, or specifically mandated by court order, the government or any political subdivision of the United States of America or any state thereof, or Canada or any province thereof duly acting under the authority of **Environmental Laws**; or

(2) which have been actually incurred by the government or any political subdivision of the United States of America or any state thereof or Canada or any province thereof, or by third parties.

E. **Environmental Laws** means any applicable federal, state, provincial or local law under which the **Insured** has or may have an obligation to incur **Clean-Up Costs**.

F. **Identified Underground Storage Tank** is an **Underground Storage Tank**, the existence of which was known by any **Insured** prior to the inception date of this Policy, including **Underground Storage Tanks** which have been removed. An **Underground Storage Tank** is any tank, including associated underground piping connected to the tank, that has at least ten percent (10%) of its volume below ground.

G. **Insured** means the **Named Insured**, and any past or present director, officer, partner or employee thereof, including a temporary or leased employee, while acting within the scope of his/her duties as such.

H. **Insured Contract** means:

(1) A contract for a lease of premises.

(2) That part of any other contract or agreement pertaining to your business (including an indemnification of a municipality in connection with work performed for a municipality) under

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which you assume the tort liability of another party to pay for **Bodily Injury**, **Property Damage** or **Clean-Up Costs** to a third person or organization. Tort liability means a liability that would be imposed by law in the absence of any contract or agreement.

(3) A contract or agreement submitted to and approved by the Company, and listed in a Schedule to this Policy.

Paragraph (2) does not include that part of any contract or agreement that indemnifies an architect, engineer or surveyor for injury or damage arising out of:

(a) Preparing, approving, or failing to prepare or approve maps, shop drawings, opinions, reports, surveys, field orders, change orders or drawings and specifications; or

(b) Giving directions or instructions, or failing to give them, if that is the primary cause of the **Bodily Injury**, **Property Damage** or **Clean-Up Costs**.

I. **Insured's Products** means goods or products manufactured, sold, handled or distributed by the **Insured** or others trading under the **Insured's** name, and includes containers (other than **Automobiles**, rolling stock, **Vessels** or aircraft), materials, parts or equipment furnished in connection therewith, and includes warranties or representations made at any time with respect to the fitness, quality, durability, performance or use thereof, or the failure to provide warnings or instructions.

J. **Insured Property** means real property owned, leased, rented or occupied by the **Insured**.

K. **Loss** means (1) monetary awards or settlements of compensatory damages arising from **Bodily Injury** or **Property Damage**; (2) costs, charges and expenses incurred in the defense, investigation or adjustment of **Claims** for such compensatory damages or for **Clean-Up Costs**; or (3) **Clean-Up Costs**.

L. **Named Insured** means the person or entity designated as such in Item 1 of the Declarations.

M. **Policy Period** means the period set forth in Item 2 of the Declarations, or any shorter period as a result of cancellation of this Policy.

N. **Pollution Conditions** means the discharge, dispersal, release or escape of any solid, liquid, gaseous or thermal irritant or contaminant, including smoke, vapors, soot, fumes, acids, alkalis, toxic chemicals, medical **Waste** and **Waste** materials into or upon land, or any structure on land, the atmosphere or any watercourse or body of water, including groundwater, provided such conditions are not naturally present in the environment.

O. **Property Damage** means:

(1) Physical injury to or destruction of tangible property of parties other than the **Insured**, including the resulting loss of use or value thereof; and

(2) Loss of use, but not loss of value, of tangible property of parties other than the **Insured** that has not been physically injured or destroyed.

Property Damage does not include **Clean-Up Costs**.

P. **Responsible Insured** means any employee of the **Named Insured** responsible for environmental affairs, control or compliance, or any manager, supervisor, officer, director or partner of the **Named Insured**.

Q. **Vessel** means any watercraft or other conveyance used or capable of being used as a means of transportation on water, whether self-propelled or otherwise, and includes barges and tugs.

R. **Waste** means waste generated by the **Named Insured**, including any property in which the wastes are

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contained (other than **Automobiles**, rolling stock, **Vessels** or aircrafts), and including materials to be recycled, reconditioned or reclaimed.

S. **Waste Disposal Activities** means the transportation, processing, treatment or disposal, or the arranging for the transportation, processing, treatment or disposal of **Waste**.

IV. LIMIT OF LIABILITY AND DEDUCTIBLE

A. The Company's total liability for all **Clean-Up Costs** under Insuring Agreement I.A. and all **Loss** under Insuring Agreement I.B. combined, and including the Extended Reporting Period, if applicable, shall not exceed the "Policy Aggregate" shown in Item 3 of the Declarations. The purchase by the **Named Insured** of an Extended Reporting Period pursuant to Section V. shall not serve to reinstate or increase the Policy Aggregate of this Policy.

B. (1) Subject to Paragraph A. above, the Company's total liability for all **Clean-Up Costs** under Insuring Agreement I.A and **Loss** under Insuring Agreement I.B. combined, arising from the same, continuous or related **Pollution Conditions** shall not exceed the "Each Incident" limit of liability stated in Item 3 of the Declarations.

(2) If the **Insured** first discovers **Pollution Conditions** during the **Policy Period** and reports them to the Company in accordance with Section VI., all continuous or related **Pollution Conditions** first discovered by the **Named Insured** and reported to the Company under a subsequent Commercial Pollution Legal Liability Policy issued by the Company or its affiliate providing substantially the same coverage as this Policy shall be deemed to have been first discovered and reported during this **Policy Period.**

(3) If a **Claim** for **Bodily Injury, Property Damage** or **Clean-Up Costs** is first made against the **Insured** and reported to the Company during the **Policy Period**, all **Claims** for **Bodily Injury, Property Damage** or **Clean-Up Costs**, arising from the same, continuous or related **Pollution Conditions** which are first made against the **Insured** and reported to the Company under a subsequent Pollution Legal Liability Policy issued by the Company or its affiliate providing substantially the same coverage as this Policy, shall be deemed to have been first made and reported during the **Policy Period** of this Policy.

C. Subject to Paragraphs A. and B. above, this Policy is to pay covered **Clean-Up Costs** or **Loss**, as the case may be, in excess of the Deductible amount stated in Item 4 of the Declarations, up to but not exceeding the "Each Incident" limit of liability. The Deductible amount applies to all **Clean-Up Costs** or **Loss** arising from the same, related or continuous **Pollution Conditions.**

The **Insured** shall promptly reimburse the Company for advancing any element of **Clean-Up Costs** or **Loss** falling within the Deductible.

V. EXTENDED REPORTING PERIOD

The **Named Insured** shall be entitled to an Automatic Extended Reporting Period, and (with certain exceptions as described in paragraph B. of this Section) be entitled to purchase an Optional Extended Reporting Period Endorsement for Insuring Agreement I.B., upon termination of coverage as defined in Paragraph B.(3) of this Section. Neither the Automatic nor the Optional Extended Reporting Period shall reinstate or increase any of the limits of liability of this Policy.

A. Automatic Extended Reporting Period

Provided (i) that the **Named Insured** has not purchased any other insurance to replace this insurance and which applies to **Clean-Up Costs** or a **Claim** otherwise covered hereunder, and (ii) the **Named Insured** has not purchased the Optional Extended Reporting Period available under paragraph B. below, the **Named Insured** shall have the right to the following: a period of sixty (60) days following the

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effective date of such termination of coverage in which to provide written notice to the Company of Claims first made and reported within the Automatic Extended Reporting Period.

A **Claim** first made and reported within the Automatic Extended Reporting Period will be deemed to have been made on the last day of the **Policy Period**, provided that the **Claim** arises from **Pollution Conditions** that commenced before the end of the **Policy Period** and is otherwise covered by this Policy. The Automatic Extended Reporting Period in its entirety shall not apply if the Optional Extended Reporting Period becomes effective.

B. **Optional Extended Reporting Period**

The **Named Insured** shall be entitled to purchase an Optional Extended Reporting Period upon termination of coverage as defined herein (except in the event of nonpayment of premium), as follows:

(1) A **Claim** first made and reported within the Optional Extended Reporting Period, if purchased in accordance with the provisions contained in Paragraph (2) below, will be deemed to have been made on the last day of the **Policy Period**, provided that the **Claim** arises from **Pollution Conditions** that commenced before the end of the **Policy Period** and is otherwise covered by this Policy.

(2) The Company shall issue an endorsement providing an Optional Extended Reporting Period of up to forty (40) months from termination of coverage hereunder, provided that the **Named Insured**:

a. makes a written request for such endorsement which the Company receives within thirty (30) days after termination of coverage as defined herein; and

b. pays the additional premium when due. If that additional premium is paid when due, the Extended Reporting Period may not be canceled, provided that all other terms and conditions of the Policy are met.

(3) Termination of coverage occurs at the time of cancellation or nonrenewal of this Policy by the **Named Insured** or by the Company.

(4) The Optional Extended Reporting Period is available to the **Named Insured** for not more than 200% of the full annual Policy premium.

VI. NOTICE REQUIREMENTS AND CLAIM PROVISIONS

It is a condition precedent to any rights afforded under this Policy that the **Insured** provide the Company with notice of **Pollution Conditions** as follows:

A. NOTICE OF POLLUTION CONDITIONS

(1) In the event of **Pollution Conditions** under Insuring Agreement I.A., the **Insured** shall give written notice to:

Manager, Pollution Insurance Products Unit
AIG Technical Services, Inc.
Environmental Claims Department
80 Pine Street, Sixth Floor
New York, New York 10005

and

Division Attorney - Pollution Legal Liability

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American International Specialty Lines Insurance Company
175 Water Street, Twelfth Floor
New York, New York 10038

or other address(es) as substituted by the Company in writing.

(2) The notice required by Paragraph (1) shall include at a minimum, information sufficient to identify the **Named Insured**, the **Insured Property**, the names of persons with knowledge of the **Pollution Conditions**, and all known and reasonably obtainable information regarding the time, place, cause, nature of and other circumstances of the **Pollution Conditions**. Written notice shall be made on a notice of loss form supplied by the Company.

Notice of **Pollution Conditions** may only be provided by the **Insured** and may not be delegated to third parties. It is not a defense to this condition precedent that the Company learned of the **Pollution Conditions** through any independent means.

B. DUTIES OF THE INSURED IN THE EVENT OF CLAIMS ARISING FROM POLLUTION CONDITIONS

(1) In the event of a **Claim**, the **Insured** shall give the Company's representative(s) as identified in this paragraph written notice as soon as practicable, but in any event during the **Policy Period** or Extended Reporting Period, if applicable.

All **Claims** shall be reported to:

Manager, Pollution Insurance Products Unit
AIG Technical Services, Inc.
Environmental Claims Department
80 Pine Street, Sixth Floor
New York, New York 10005

and

Division Attorney - Pollution Legal Liability
American International Specialty Lines Insurance Company
175 Water Street, Twelfth Floor
New York, New York 10038

or other address(es) as substituted by the Company in writing.

(2) The **Insured** shall furnish information at the request of the Company. When a **Claim** has been made, the **Insured** shall forward to the Company as soon as practicable after receipt, or receipt by its representative or agent, the following:

a. All correspondence between the **Insured** and any third party claimant;

b. All demands, summons, notices or other processes or papers filed with a court of law, administrative agency or an investigative body;

c. All technical reports, laboratory data, field notes or any other documents generated by persons hired by the **Insured** to investigate or remediate **Pollution Conditions**;

d. All expert reports, investigations and data collected by experts retained by the

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Insured, whether or not the Insured intends to use the material for any purpose; and

e. Any other information developed or discovered by the Insured concerning the Claim, whether or not deemed by the Insured to be relevant to the Claim.

(3) No costs, charges or expenses shall be incurred in the defense or investigation of Claims without the Company's consent, which shall not be unreasonably withheld.

(4) If the Insured refuses to consent to any settlement recommended by the Company and acceptable to the claimant, the Company's duty to defend the Insured shall then cease and the Insured shall thereafter negotiate or defend such Claim independently of the Company and the Company's liability shall not exceed the amount, less the Deductible or any outstanding Deductible balance, for which the Claim could have been settled if such recommendation was consented to.

(5) The Company shall have the right but not the duty to participate in decisions regarding cleanup of Pollution Conditions or to assume direct control over all aspects of such cleanup and the adjustment of any Claim up to the limit of liability. In the case of the exercise of this right, the Insured, on demand of the Company, shall promptly reimburse the Company for any element of Loss the Company advances falling within the Insured's Deductible, pursuant to Section IV.

(6) The Insured shall cooperate with the Company to the fullest extent possible by providing the assistance necessary to adjust, investigate and defend the Claim, and shall participate in discussions regarding clean-up or performance of a clean-up should the Company exercise its rights under Paragraph (5) of this Section VI.B. The Insured agrees to provide the Company free access to interview any employee, agent, representative or independent contractor of the Insured and review any documents of the Insured concerning the Claim.

(7) In the event the Insured is entitled by law to select independent counsel to defend the Insured at the Company's expense, the attorney fees and all other litigation expenses the Company must pay to that counsel are limited to the rates the Company would actually pay to counsel that the Company retains in the ordinary course of business in the defense of similar Claims in the community where the Claim arose or is being defended.

Additionally, the Company may exercise the right to require that such counsel have certain minimum qualifications with respect to their competency, including experience in defending Claims similar to the one pending against the Insured, and to require such counsel to have errors and omissions insurance coverage. As respects any such counsel, the Insured agrees that counsel will timely respond to the Company's request for information regarding the Claim.

Furthermore, the Insured may at anytime, by its signed consent, freely and fully waive its right to select independent counsel.

C. RIGHTS OF THE COMPANY AND DUTIES OF THE INSURED IN THE EVENT OF POLLUTION CONDITIONS

(1) The Company's Rights.

a. The Company shall have the right but not the duty to clean-up or mitigate Pollution Conditions on or under the Insured Property upon receiving notice as provided in Section VI. of this Policy.

b. Allocation of Sums Expended. Any sums expended by the Company under Paragraph (1)a. of this Section VI.C. will be deemed incurred or expended by the Insured and shall

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be applied against the limits of coverage under this Policy.

(2) The **Named Insured** shall have the duty to clean-up **Pollution Conditions** on or under the **Insured Property** to the extent required by **Environmental Laws** by retaining competent professional(s) or contractor(s) mutually acceptable to the Company and the **Named Insured**. The Company shall have the right but not the duty to review and approve all aspects of any such clean-up. The **Named Insured** shall notify the Company of actions and measures taken pursuant to this paragraph.

VII. TERRITORY

This Policy only applies to **Claims** arising from **Pollution Conditions** in the United States, its territories or possessions, or Canada and only if such **Claims** are made or brought in the United States, its territories or possessions, or Canada.

VIII. CONDITIONS

A. **Inspection and Audit** - The Company shall be permitted but not obligated to inspect, sample and monitor on a continuing basis the **Insured's** property or operations, at any time. Neither the Company's right to make inspections, sample and monitor, nor the actual undertaking thereof nor any report thereon, shall constitute an undertaking, on behalf of the **Insured** or others, to determine or warrant that property or operations are safe, healthful or conform to acceptable engineering practice or are in compliance with any law, rule or regulation.

B. **Cancellation** - This Policy may be cancelled by the **Named Insured** by surrender thereof to the Company or any of its authorized agents or by mailing to the Company written notice stating when thereafter the cancellation shall be effective. This Policy may be cancelled by the Company only for the reasons stated below by mailing to the **Named Insured** at the address shown in the Policy, written notice stating when not less than 60 days (10 days for nonpayment of premium) thereafter such cancellation shall be effective. Proof of mailing of such notice shall be sufficient proof of notice.

1. Material misrepresentation by the **Insured**;

2. The **Insured's** failure to comply with the terms, conditions or contractual obligations under this policy, including failure to pay any **Deductible** when due;

3. Failure to pay any premium when due;

4. A change in operations at an **Insured Property** during the **Policy Period** which materially increases a risk covered under this Policy.

The time of surrender or the effective date and hour of cancellation stated in the notice shall become the end of the **Policy Period**. Delivery of such written notice either by the **Named Insured** or by the Company shall be equivalent to mailing. If the **Named Insured** cancels, earned premium shall be computed in accordance with the customary short rate table and procedure. If the Company cancels, earned premium shall be computed pro rata. Premium adjustment may be either at the time cancellation is effected or as soon as practicable after cancellation becomes effective, but payment or tender of unearned premium is not a condition of cancellation.

C. **Representations** - By acceptance of this Policy, the **Insured** agrees that the statements in the Declarations and Application are their agreements and representations, that this Policy is issued in reliance upon the truth of such representations, and that this Policy embodies all agreements existing between the **Insured** and the Company or any of its agents relating to this insurance.

D. **Action Against Company** - No action shall lie against the Company, unless as a condition precedent

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thereto, there shall have been full compliance with all of the terms of this Policy, nor until the amount of the Insured's obligation to pay shall have been finally determined either by judgment against the Insured after actual trial or by written agreement of the Insured, the claimant and the Company.

Any person or organization or the legal representative thereof who has secured such judgment or written agreement shall thereafter be entitled to recover under this Policy to the extent of the insurance afforded by this Policy. No person or organization shall have any right under this Policy to join the Company as a party to any action against the Insured to determine the Insured's liability, nor shall the Company be impleaded by the Insured or his legal representative. Bankruptcy or insolvency of the Insured or of the Insured's estate shall not relieve the Company of any of its obligations hereunder.

E. **Assignment** - This Policy shall not be assigned without the prior written consent of the Company. Assignment of interest under this Policy shall not bind the Company until its consent is endorsed thereon.

F. **Subrogation** - In the event of any payment under this Policy, the Company shall be subrogated to all the Insured's rights of recovery therefor against any person or organization and the Insured shall execute and deliver instruments and papers and do whatever else is necessary to secure such rights including without limitation, assignment of the Insured's rights against any person or organization who caused Pollution Conditions on account of which the Company made any payment under this Policy. The Insured shall do nothing to prejudice the Company's rights under this paragraph. Any recovery as a result of subrogation proceedings arising out of the payment of **Clean-Up Costs** or **Loss** covered under this Policy shall accrue first to the Insured to the extent of any payments in excess of the limit of coverage; then to the Company to the extent of its payment under the Policy; and then to the Insured to the extent of its Deductible. Expenses incurred in such subrogation proceedings shall be apportioned among the interested parties in the recovery in the proportion that each Interested party's share in the recovery bears to the total recovery.

G. **Changes** - Notice to any agent or knowledge possessed by any agent or by any other person shall not effect a waiver or a change in any part of this Policy or estop the Company from asserting any right under the terms of this Policy; nor shall the terms of this Policy be waived or changed, except by endorsement issued to form a part of this Policy.

H. **Sole Agent** - The **Named Insured** first listed in Item 1 of the Declarations shall act on behalf of all other Insureds, if any, for the payment or return of premium, receipt and acceptance of any endorsement issued to form a part of this Policy, giving and receiving notice of cancellation or nonrenewal, and the exercise of the rights provided in the Extended Reporting Period clause.

I. **Other Insurance**

(1) Primary Insurance

This Insurance is primary. Our obligations are not affected unless any other insurance applicable to **Clean-Up Costs** or **Loss** covered under this Policy is also primary. Then, we will share with all that other insurance by the method described in (2) below.

(2) Method of Sharing

If all of the other insurance permits contribution by equal shares, we will follow this method also. Under this approach each insurer contributes equal amounts until it has paid its applicable limit of insurance or none of the loss remains, whichever comes first.

If any of the other insurance does not permit contribution by equal shares, we will contribute by limits. Under this method, each insurer's share is based on the ratio of its applicable limit of insurance to the total applicable limits of insurance of all insurers.

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J. **Service of Suit** - It is agreed that in the event of failure of the Company to pay any amount claimed to be due hereunder, the Company, at the request of the Insured, will submit to the jurisdiction of a court of competent jurisdiction within the United States. Nothing in this condition constitutes or should be understood to constitute a waiver of the Company's rights to commence an action in any court of competent jurisdiction in the United States, to remove an action to a United States District Court, or to seek a transfer of a case to another court as permitted by the laws of the United States or of any state in the United States. It is further agreed that service of process in such suit may be made upon Counsel, Legal Department, American International Specialty Lines Insurance Company, 70 Pine Street, New York, New York 10270, or his or her representative, and that in any suit instituted against the Company upon this contract, the Company will abide by the final decision of such court or of any appellate court in the event of any appeal.

Further, pursuant to any statute of any state, territory, or district of the United States which makes provision therefor, the Company hereby designates the Superintendent, Commissioner, or Director of Insurance, other officer specified for that purpose in the statute, or his or her successor or successors in office as its true and lawful attorney upon whom may be served any lawful process in any action, suit or proceeding instituted by or on behalf of the Insured or any beneficiary hereunder arising out of this contract of insurance, and hereby designates the above named counsel as the person to whom the said officer is authorized to mail such process or a true copy thereof.

IN WITNESS WHEREOF, the Company has caused this Policy to be signed by its president and secretary and signed on the Declarations page by a duly authorized representative or countersigned in states where applicable.

Elizabeth M. Tuck, Secretary

Kevin Kelley, President

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Exhibit F

Bottle Rock Power Plant and Steamfield
Schedule of Assets
(Non-Exhaustive)

Power Plant Assets

- Concrete Power House (Turbine Building)
- Fuji Turbine-Generator System
- Lubricating Oil System (Includes Existing Volume of Lube Oil)
- Control Room Equipment and All Telecommunications Equipment
- Motor Control System
- Emergency Battery Bank
- Emergency Electrical Generators (Diesel) and Associated Buildings
- Electrical Substation (13.8 kv to 230 kv Transformer and Switch Gear)
- Electrical Transformers, Potential Ground Switches, Circuit Breakers and All Other Related Electrical Systems
- Heat Extraction System (Main, Inter, and After Condensers)
- Turbine Bypass Condensing System
- Research-Cottrell Five Cell Counter-Flow Cooling Tower
- Condensate and Circulating Water Pumping Systems and All Other Ancillary Pumps
- Peabody Designed Stretford H_2S Abatement System
- Stretford Control Building, Controls, and Associated Analytical Laboratory
- Stretford Sulphur Co-Product Management System
- Secondary Abatement System with All Related Storage Tanks and Pumps
- Main Steam Emergency Exhaust Muffler System
- Plant Yard Fixtures, Improvements, and Various Out-Buildings
- All Spare Parts on the Premises (Including but not limited to the Spare Turbine Rotor, Diaphragms, Gear Boxes, Condenser Tubes) and All Special Tools

Steamfield Assets

- Fourteen (14) Production Steam Wells on Three (3) Different Pads
- Two (2) Liquid Re-Injection Wells
- Steam Gathering and Transmission Piping (Approximately 3.5 Miles Total)
- Steamfield Control Building, Shop, Lay Down Yard, and Various Out-Buildings
- Wellhead Valves of Various Sizes
- Motorized Main Steam Stop Valves

Related Assets

- All Instruction Manuals, Engineering Data Books, and Parts Catalogues
- All Diagrams and Drawings (Including All Piping and Instrument Drawings)
- All Plant and Steamfield Performance Records

FIRST AMENDMENT
TO THE
PURCHASE AGREEMENT FOR BOTTLE ROCK POWER PLANT AND
ASSIGNMENT OF GEOTHERMAL STEAM LEASE

Pursuant to Paragraph 10.14 of the above-entitled Purchase Agreement, the **STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES** and **BOTTLE ROCK POWER CORPORATION,** a California Corporation, do hereby agree to amend said Purchase Agreement as follows:

1. The aforesaid Purchase Agreement shall be amended in that the date specified in the last line of Paragraph 2.2 as the "Outside Closing Date" shall be changed and amended from June 1, 2001, to June 15, 2001.

2. In all other respects, the aforesaid Purchase Agreement shall remain unchanged and in full force and effect.

IN WITNESS WHEREOF, the parties hereto, intending to be legally bound, have executed this document as of May 31, 2001.

SELLER:

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

By: _____
Director

Approved for Form and Sufficiency

_____
Chief Counsel

BUYER:

BOTTLE ROCK POWER CORPORATION

By: _____
As President

APPROVED
Department of General Services
By Dwight V. Weathers
Assistant Chief
Real Estate Services Section

SECOND AMENDMENT
TO THE
PURCHASE AGREEMENT FOR BOTTLE ROCK POWER PLANT AND ASSIGNMENT OF GEOTHERMAL STEAM LEASE

Pursuant to Paragraph 10.14 of the above-entitled Purchase Agreement, the **STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES** and **BOTTLE ROCK POWER CORPORATION,** a California Corporation, do hereby agree to amend said Purchase Agreement as follows:

1. The aforesaid Purchase Agreement (as previously amended by the First Amendment) shall be amended in that the date specified in the last line of Paragraph 2.2 as the "Outside Closing Date" shall be changed and amended from June 15, 2001, to June 22, 2001.

2. In all other respects, the aforesaid Purchase Agreement shall remain unchanged and in full force and effect.

IN WITNESS WHEREOF, the parties hereto, intending to be legally bound, have executed this document as of June 14, 2001.

SELLER:

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

By: Thomas M. Hannigan
Director

Approved for Form and Sufficiency

Susan N. Weber
Chief Counsel

BUYER:

BOTTLE ROCK POWER CORPORATION

By: Ronald E. Suess
As President

APPROVED
Department of General Services
Phillip J. Salamy
By
Assistant Chief
Real Estate Services Section

THIRD AMENDMENT
TO THE
PURCHASE AGREEMENT FOR BOTTLE ROCK POWER PLANT AND ASSIGNMENT OF GEOTHERMAL STEAM LEASE

Pursuant to Paragraph 10.14 of the above-entitled Purchase Agreement, the **STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES** and **BOTTLE ROCK POWER CORPORATION,** a California Corporation, do hereby agree to amend said Purchase Agreement as follows:

1. The aforesaid Purchase Agreement (as previously amended by the First Amendment and the Second Amendment) shall be amended in that the date specified in the last line of Paragraph 2.2 as the "Outside Closing Date" shall be changed and amended from June 22, 2001, to June 29, 2001.

2. In all other respects, the aforesaid Purchase Agreement shall remain unchanged and in full force and effect.

IN WITNESS WHEREOF, the parties hereto, intending to be legally bound, have executed this document as of June 21, 2001.

SELLER:

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

By: _____
Director

Approved for Form and Sufficiency

_____
for Chief Counsel

BUYER:

BOTTLE ROCK POWER CORPORATION

By: _____
As President

APPROVED
Department of General Services
By
Assistant Chief
Real Estate Services Section

FOURTH AMENDMENT
TO THE
PURCHASE AGREEMENT FOR BOTTLE ROCK POWER PLANT AND ASSIGNMENT OF GEOTHERMAL STEAM LEASE

Pursuant to Paragraph 10.14 of the above-entitled Purchase Agreement, the **STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES** and **BOTTLE ROCK POWER CORPORATION,** a California Corporation, do hereby agree to amend said Purchase Agreement as follows:

1. The aforesaid Purchase Agreement (as previously amended by the First Amendment and the Second Amendment) shall be amended in that the date specified in the last line of Paragraph 2.2 as the "Outside Closing Date" shall be changed and amended from June 29, 2001, to July 6, 2001.

2. In all other respects, the aforesaid Purchase Agreement shall remain unchanged and in full force and effect.

IN WITNESS WHEREOF, the parties hereto, intending to be legally bound, have executed this document as of ~~July 6~~ June 28, 2001.

SELLER:

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

By: Lucinda Ehrgoment
Acting Director

Approved for Form and Sufficiency

Chief Counsel

BUYER:

BOTTLE ROCK POWER CORPORATION

By: Ronald E. Gress
As President

APPROVED
Department of General Services
By Dwight V. Weathers
Assistant Chief
Real Estate Services Section

TR 010283 YCY

FIFTH AMENDMENT
TO THE
PURCHASE AGREEMENT FOR BOTTLE ROCK POWER PLANT AND ASSIGNMENT OF GEOTHERMAL STEAM LEASE

Pursuant to Paragraph 10.14 of the above-entitled Purchase Agreement, the **STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES** and **BOTTLE ROCK POWER CORPORATION,** a California Corporation, do hereby agree to amend said Purchase Agreement as follows:

1. The aforesaid Purchase Agreement (as previously amended by the First Amendment and the Second Amendment) shall be amended in that the date specified in the last line of Paragraph 2.2 as the "Outside Closing Date" shall be changed and amended from July 6, 2001, to July 20, 2001.

2. In all other respects, the aforesaid Purchase Agreement shall remain unchanged and in full force and effect.

IN WITNESS WHEREOF, the parties hereto, intending to be legally bound, have executed this document as of July 6, 2001.

SELLER:

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

By: _____
for Director

Approved for Form and Sufficiency

_____
Chief Counsel

BUYER:

BOTTLE ROCK POWER CORPORATION

By: _____
As President

APPROVED
Department of General Services
By Dwight V. Weathers
Assistant Chief
Real Estate Services Section

TR 01028 B YCP

SIXTH AMENDMENT
TO THE
PURCHASE AGREEMENT FOR BOTTLE ROCK POWER PLANT AND ASSIGNMENT OF GEOTHERMAL STEAM LEASE

Pursuant to Paragraph 10.14 of the above-entitled Purchase Agreement, the **STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES** and **BOTTLE ROCK POWER CORPORATION,** a California Corporation, do hereby agree to amend said Purchase Agreement as follows:

1. The aforesaid Purchase Agreement (as previously amended by the First Amendment and the Second Amendment) shall be amended in that the date specified in the last line of Paragraph 2.2 as the "Outside Closing Date" shall be changed and amended from July 20 2001, to July 27, 2001.

2. In all other respects, the aforesaid Purchase Agreement shall remain unchanged and in full force and effect.

IN WITNESS WHEREOF, the parties hereto, intending to be legally bound, have executed this document as of July 20, 2001.

SELLER:

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

By: Stephen J. Kashiwada for Director

Approved for Form and Sufficiency

Susan Weber
Chief Counsel

BUYER:

BOTTLE ROCK POWER CORPORATION

By: Ronald E. Guess
As President

APPROVED
Department of General Services
By Dwight V. Weathers
Assistant Chief
Real Estate Services Section

TR0102813 MCC

SEVENTH AMENDMENT
TO THE
PURCHASE AGREEMENT FOR BOTTLE ROCK POWER PLANT AND ASSIGNMENT OF GEOTHERMAL STEAM LEASE

Pursuant to Paragraph 10.14 of the above-entitled Purchase Agreement, the STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES and BOTTLE ROCK POWER CORPORATION, a California Corporation, do hereby agree to amend said Purchase Agreement as follows:

1. In consideration of the payment of Twenty-Five Thousand Dollars ($25,000.00) by Buyer, the aforesaid Purchase Agreement (as previously amended by the First through the Sixth Amendments) shall be amended in that the date specified in the last line of Paragraph 2.2 as the "Outside Closing Date" shall be changed and amended from July 27, 2001, to August 21, 2001.

2. In all other respects, the aforesaid Purchase Agreement shall remain unchanged and in full force and effect.

IN WITNESS WHEREOF, the parties hereto, intending to be legally bound, have executed this document as of July 27, 2001.

SELLER:

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

By: _____
Director

Approved for Form and Sufficiency

_____
Acting Chief Counsel

BUYER:

BOTTLE ROCK POWER CORPORATION

By: _____
As President

APPROVED
Department of General Services

By Dwight V. Weathers
Assistant Chief
Real Estate Services Section

TR010283

EXHIBIT 111

AMENDED AND RESTATED GEOTHERMAL LEASE AND AGREEMENT

THIS AMENDED AND RESTATED GEOTHERMAL LEASE AND AGREEMENT (hereinafter the "**Lease**") is made and entered into as of the 25th day of July, 2012, by and between V. V. & J. Coleman, LLC, a California limited liability company, having its principal office at 6112 Doubloon Court, Elk Grove, CA 95758, hereinafter called the "**Lessor**", and Bottle Rock Power, LLC, a Delaware limited liability company, having its principal office at 7385 High Valley Road, Cobb, CA 95426, hereinafter called the "**Lessee**".

WHEREAS, Lessor is the owner of the lands described in Exhibit A attached hereto and made a part hereof, containing three hundred fifty (350) acres, more or less (hereinafter collectively referred to as "**Lands**") situated in Lake County, State of California;

WHEREAS, Lessee is the successor-in-interest to persons and entities who have developed the Lands for the production of geothermal resources, which resources are used by the Bottle Rock Power Plant (the "**Project**") to generate electricity;

WHEREAS, Lessor, as successor-in-interest, and Lessee, as successor-in-interest, are parties to that certain Geothermal Lease and Agreement dated February 25, 1975 (as amended, the "**Original Lease**"); and

WHEREAS, Lessor and Lessee desire now to amend and restate the Original Lease, on the terms and conditions set forth herein.

NOW, THEREFORE, witnesseth that:

A. Grant of Lease and Rights.

FOR AND IN CONSIDERATION of the sum of Ten Dollars ($10.00) paid to the Lessor by the Lessee and other good and valuable considerations, receipt and sufficiency of which is hereby acknowledged by the parties, and in consideration of the covenants and agreements by the Lessee hereinafter contained to be kept and performed by it, Lessor has GRANTED, LEASED, LET AND DEMISED and by these presents does grant, lease, let and demise to Lessee, its successors and assigns upon and subject to the terms hereinafter set forth, the Lands as described, with the sole and exclusive right to the Lessee:

(a) To explore, drill for, produce, extract, take, treat, refine, convert or otherwise process, store upon, and remove from the Lands, and to appropriate and/or sell for its sole account and risk, all minerals, chemical elements and compounds, whether in solid, liquid, or gaseous form, all steam and other forms of thermal energy, and all gases other than those specifically excepted below, emanating from the lands (all of the said minerals, etc., produced from the Lands being hereinafter collectively referred to as "**Substances**"), and to use the Substances to generate electric energy for use or sale at its sole account and risk; and

(b) to do upon any portions of the Lands all things necessary or appropriate in its sole bona fide judgment to exercise fully and efficiently all of the rights granted by the foregoing item (a) under this section (hereinafter referred to collectively as the

"**Objectives**"), including but not limited to the storing and use of materials, the installation, construction, maintenance, operation, (and repair, removal, and replacement, as the case may be, where the same have been placed on the Lands by the Lessee) of all buildings, power and other plants (including, without limitation, the Project), refineries and other treatment and processing, facilities, structures, machinery, tools, equipment, fixtures, tanks, pipe lines, booster plants, pumping stations, roads, trackage and other means of transportation for both materials and personnel, communication, power and water systems, and other like and unlike facilities including sump and other ponds, of whatever nature deemed appropriate by the Lessee to the accomplishment of the Objectives. The foregoing specific enumeration shall in no way be regarded as a limitation upon or as a reduction of the general rights included within the Objectives.

TOGETHER WITH A RIGHT OF WAY ENTRY into and upon, transit through and across, and egress from the Lands for all men and material engaged in accomplishment of the Objectives, and any like activities by or for the Lessee on property in the vicinity of the lands, and for all products of a like nature as Substances produced by or for Lessee from lands in the vicinity of the lands.

B. Terms and Conditions

1. **Lease Term and Rentals**.

[redacted]

2. **Acreage**. For the purpose of calculating all payments hereunder, the Lands shall be considered to comprise 350 acres whether more or less in fact.

3. **Royalties**.

4. **Payment of Royalties; Reports; Verification**.

5. **Payment**. [redacted]

6. **Lessee's Use of Production for Its Operation**. [redacted]

7. **Uneconomic Substances**. [redacted]

8. **Security; Damages Resulting From Lessee's Operations**. [redacted]

9. **Title Warranty**. Lessor hereby grants and agrees to defend title to the Lands except for rights of way and easements of record, and further agrees that Lessee at his option may pay and discharge any delinquent taxes, mortgages, trust deeds or other delinquent liens or encumbrances existing, levied or assessed on or against the said Lands; and, in the event Lessee shall exercise such option Lessee shall be subrogated to the rights of any holder or holders thereof and shall have the right, in addition to other remedies provided by law or equity, to reimburse himself by applying to the discharge of any such mortgage, tax or other lien or encumbrance any and all payments accruing to Lessor hereunder.

10. **Lesser Interest**. [redacted]

11. **Taxes**. [redacted]

12. **Operations**.

(a) Lessee will comply with all laws and regulations applicable to its operations hereunder including but not limited to requirements for workmen's compensation insurance as required by the law of the State of California and all applicable environmental regulations.

[redacted]

[redacted]

[redacted]

13. **Force Majeure**. [redacted]

14. **Surrenders**. [INTENTIONALLY OMITTED]

15. **Breach of Agreement by Lessee**. [redacted]

16. **Removal of Lessee's Property; Decommissioning; Put Option**.

(a) Lessee may at any time during the term of this Lease remove all or any of the property and fixtures placed by it in or upon the Lands, including the right to draw and remove all casing.

(b) Following (i) termination of this Lease for any cause or (ii) the dissolution or election to dissolve of Lessee, Lessor and Lessee shall enter into a binding agreement for the decommissioning of the Project generally in accordance with the scope attached hereto as Exhibit B. Such decommissioning shall be at Lessee's sole cost and expense; provided, that Lessor may, in its sole discretion, release Lessee from all or any part of Lessee's obligations to perform and/or pay for such decommissioning. Lessee may not assign its obligation to decommission the Project without the prior written consent of Lessor, which consent will be granted in Lessor's sole discretion.

(c) Following termination of this Lease for any cause, Lessor may require Lessee to purchase all of Lessor's right, title and interest in and to the surface of the Lands for the sum of [redacted] ("**Put Option**"). Unless agreed otherwise by the parties, in the event of Lessor's exercise of the Put Option, Lessor shall retain all right, title and interest in and to the Substances.

17. **Assignment**.

18. **Notices**.

19. **Entirety Clause**.

20. **Severability**. [redacted]

21. **Binding Effect**. [redacted]

22. **Attorneys' Fees**. [redacted]

23. **Entire Agreement**. [redacted]

24. **Amendments**. [redacted]

25. **Governing Law**. This Lease shall be governed by, construed and enforced in accordance with the laws of the State of California, without regard to principles of conflicts of law.

26. **Authorization**. [redacted]

[***remainder of page intentionally left blank***]

IN WITNESS WHEREOF, the parties hereto have executed this Lease as of the date hereinabove first written.

LESSOR:	**LESSEE:**
V. V. & J. Coleman, LLC	**Bottle Rock Power, LLC**
By: _____	By: _____
Name: Robert Francisco	Name: Brian Harms
Title: President and CEO	Title: President

[Signature Page to Coleman-Bottle Rock A&R Lease]

CALIFORNIA ALL-PURPOSE
CERTIFICATE OF ACKNOWLEDGMENT

State of California

County of LAKE

On July 25, 2012 before me, Thanh Huynh, Notary Public, personally appeared BRIAN HARMS, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the document.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

THANH HUYNH
Commission # 1836191
Notary Public - California
Lake County
My Comm. Expires Feb 24, 2013

(Notary Seal)

Signature of Notary Public

ADDITIONAL OPTIONAL INFORMATION

DESCRIPTION OF THE ATTACHED DOCUMENT

Amended and Restated Geothermal Lease and Agreement
(Title or description of the attached document)

Number of Pages 12 Document Date 7/25/12

(Additional information)

CAPACITY CLAIMED BY THE SIGNER

- ☐ Individual
- ☐ Corporate Officer
- ☐ Partner(s)
- ☐ Attorney-in-Fact
- ☐ Trustee(s)
- ☐ Other President

IN WITNESS WHEREOF, the parties hereto have executed this Lease as of the date hereinabove first written.

LESSOR:

V. V. & J. Coleman, LLC

By: _____

Name: Robert Francisco 7-25-2012

Title: President and CEO

LESSEE:

Bottle Rock Power, LLC

By: _____

Name: Brian Harms

Title: President

[Signature Page to Coleman-Bottle Rock A&R Lease]

CERTIFICATE OF ACKNOWLEDGMENT

State of California

County of Sacramento

On July 25, 2012 before me, Robin Ballou, Notary Public, personally appeared Robert Francisco, who proved to me on the basis of satisfactory evidence to be the person(~~s~~) whose name(~~s~~) is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(ies), and that by his/~~her/their~~ signature(~~s~~) on the instrument the person(~~s~~), or the entity upon behalf of which the person(~~s~~) acted, executed the instrument.

I certify under PENALTY of PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

ROBIN BALLOU
Commission # 1843894
Notary Public - California
Sacramento County
My Comm. Expires May 7, 2013

Signature Robin Ballou (Seal)

EXHIBIT A

DESCRIPTION OF THE LANDS

Township 11 North, Range 8 West, M.D.M.

Parcel 1:

Section 5: Lots 5, 6, 9 and 10 of said section.

Parcel 2:

Section 6: Lot 10 of said section; EXCEPTING THEREFROM the following:

Beginning at the Southwest corner of Lot 10 and running North 608.6 feet; thence East 715 feet; thence South 608.6 feet; and thence westerly 715 feet to the place of beginning.

Parcel 3:

Section 5: N ½ of SW ¼ of said section 5.

Section 6: N ½ of SE ¼ of said section 6.

Containing a total of 350 acres, more or less.

EXHIBIT B

DECOMMISSIONING SCOPE

[See attached]

Item	Sub Item	Detail	Element	Action	Comment
1			Power Plant Environs	General Restoration of Property to Natual State except Turbine building and Standby Generator building. Parking in front of turbine building and road along fence to standby generator building remain.	All areas to be de-contaminated – including solvents, sulfur products and by products, chemicals, lubricants, heavy metals
	1.1		Turbine Building	De-Risk of Turbine Building	Building conveyed to Lessor
		1.1.1	Turbine Generator Set	Remove Turbine Generator Set and associated supports structure(s)	Net Salvage Value Retained by Lessor until Restoration complete
		1.1.2	Electric Equipment	Remove Electrical Equipment, banks, switches, motors	Net Salvage Value Retained by Lessor until Restoration complete
		1.1.3	Electric Wiring	Remove Electric Wiring and conduit associated with power station equipment. Repair or restore if necessary all building electric service – lights, security, electrical power outlets.	Net Salvage Value Retained by Lessor until Restoration complete
		1.1.4	Misc. Equipment	Remove all Misc Equipment	
		1.1.5	Pipe and pipe structures	Remove all Pipe and pipe support structures	
		1.1.6	Office Space	Remove all desks, benches, equipment, Restore or replace all window coverings, floor coverings and wall coverings, and personal hygiene facilities.	Internal office space to be restored to usable condition, decontaminated
		1.1.7	Floors – non Office Space	Clean, degrease, resurface if necessary all flooring throughout Building(s)	
		1.1.8	Doors, egress points	Restore or replace all moveable doors and install single key entry locks. Plug all exterior egress points (pipe, electric conduit etc. pass through holes) throughout Turbine building with architecturally appropriate material to match building interior or exterior as the case may be	
		1.1.9	Other restoration and security actions as necessary	Install fencing closely surrounding turbine building	
		1.1.10	Decontaminate and degrease all surfaces		
		1.1.11	Power supply	Install low voltage power supply to Turbine Building and Standby Generator building	
	1.2		Cooling Tower and surrounds	Demolish and secure location	
		1.2.1	Cooling Tower	Demolition and removal of all above ground facilities, including piping, wiring and equipment	
		1.2.2	Cooling Tower Foundation	Fill all subterranean structures with material, and seal with concrete, level with surroundings	
		1.2.3	Decontaminate all remaining surfaces, secure ground water seepage		
	1.3		Stretford System	Demolish and secure location, restore to natural state	
		1.3.1	Stretford System yard	Demolition and removal of all above ground facilities,	
		1.3.2	Associated Buildings	Demolition and removal of all above ground facilities,	
		1.3.3	Foundations -	Demolish foundations – remove material or use for Cooling Tower subterranean fill. Restore foundation areas to natural state with top soil and minimal re-vegetation	
		1.3.4	Decontaminate all remaining surfaces, secure ground water seepage		
	1.4		Switch Yard	Demolish and Secure Location	

		1.4.1	Electrical Equipment	Remove Electrical Equipment, Transformer banks, switches, Breakers	Net Salvage Value Retained by Lessor until Restoration complete
		1.4.2	Wire	Pull all wire for salvage	Net Salvage Value Retained by Lessor until Restoration complete
		1.4.3	Conduit / Bus works	Remove all structures, Remove or seal all conduit	
		1.4.4	Foundations - Gravel	Demolish foundations – remove material or use for Cooling Tower subterranean fill. Decontaminate soil substructure - oil, PCB's etc. Restore foundation areas to natural state with top soil and minimal re-vegetation	
		1.4.5	Fencing	Remove all fencing and post foundations, restore to natural state	
	1.5		Out buildings - not standby Generator Building	Demolish and secure location, restore to natural state	
		1.5.1	Out buildings	Demolition and removal of all above ground facilities,	
		1.5.2	Foundations	Demolish foundations – remove material or use for Cooling Tower subterranean fill. Restore foundation areas to natural state with top soil and minimal re-vegetation. All subterranean spaces other than directly under turbine building shall be collapsed and filled.	
	1.6		Standby generator building		
		1.6.1	Building	Repair or Restore building, doors and internal environs suitable for operating Standby Generator	
		1.6.2	Diesel Generator set	Repair or restore diesel generator set if economical when compared to replacing the unit	
	1.7		Perimeter Roads and laydown areas	Demolish and secure locations, restore to natural state. Demolition and removal of all above ground facilities, demolish foundations– remove material or use for Cooling Tower subterranean fill. Restore foundation areas to natural state with top soil and minimal re-vegetation. Retain and resurface perimeter road from parking area to Standby Generator building.	
	1.8		Perimeter fencing	Repair all perimeter fencing and post foundations, stabilize all slopes surrounding perimeter	
	1.9		Perimeter Lighting	Repair all perimeter lighting and foundations	
	1.10		Parking areas	Restore main entrance parking areas with new asphalt and striping. Erect barriers to former road or transit routes	
	1.11		Other Facilities	General Restoration of Property	All areas to be de-contaminated – including solvents, sulfur products and by products, chemicals, lubricants, heavy metals
2			Well Pads	General Restoration of Property	All areas to be de-contaminated – including solvents, sulfur products and by products, chemicals, lubricants, heavy metals
	2.1		Well locations	Each abandoned well site, Remove valve works, and pipe works, Plug all wells, Secure area	
	2.2		Steam Pipe and condensate lines etc.	Remove all pipe, condensate lines, and communication equipment etc.	
	2.3		Misc. Structures	Remove all Misc. Structures, inlcuding fencing, signs, storage buildings, laydown areas	
	2.4		Well Pads	Grade, and restore area to natural state by adding topsoil	

3			Steam Pipe and condensate lines etc.	General Restoration of Property	All areas to be de-contaminated – including solvents, sulfur products and by products, chemicals, lubricants, heavy metals
	3.1		Steam Pipe	Remove all Pipe, foundations and support structures	
	3.2		Condensate lines, communication lines, other	Remove all conduits, foundations and support structures	
	3.3		Steam pipe routes	Restore to natural state by grading, or small tool shaping steam pipe routes or other conduit routes.	
4			Operation and Maintence Buildings		
	4.1		Steam Field Building	Demolition and removal of all above ground facilities,	
		4.1.1	Foundations	Demolish foundations – remove material or use for Cooling Tower subterranean fill. Restore foundation areas to natural state with top soil and minimal re-vegetation	
		4.1.2	Fencing	Remove all perimeter fencing and post foundations, restore area to natural state	
		4.1.3	Laydown Areas	Remove all equipment, pipe, tools, parts and material, Grade, and restore area to natural state by adding top soil and minimal re-vegetation	
	4.2		Other Structures	Remove all above ground structures and restore area to natural state	
5			Roads, trails, parking areas, pull outs and any other disturbed land	Except for selected routes to be identified, generally remove all debris, grade and or till / soften road bed, rutts and restore to natural state, add top soil and minimal re-vegetation where necessary. Resurface all retained roads	
6			Water Retention areas	General Restoration of Property. Remove all earthen dams, barriers, ditches and any structures altering the flow of water from a natural path - Except where Oak Trees are threatened by new or anticipated water flows due to prior improvements	
7			Perimiter Fencing, gates	Repair or Restore all perimeter fencing and gates. Secure outside access to all unused or restored roads	
8			All other Disturbed areas not otherwise specifically mentioned above	General Restoration of Property to Natual State except Turbine building and Stand-by Generator building and selected Roads and Trails.	This catch all category describes the general expectation of the decommissioning effort. All areas to be de-contaminated – including solvents, sulfur products and by products, chemicals, lubricants, heavy metals and restored to their natural state, grading / tilling and adding top soil and minimal re-vegetation where necessary.

EXHIBIT 112

SETTLEMENT AGREEMENT AND RELEASE OF CLAIMS

1. This SETTLEMENT AGREEMENT AND RELEASE OF CLAIMS ("Agreement") is made by and among the STATE OF CALIFORNIA by and through the DEPARTMENT OF WATER RESOURCES (the "State" or "DWR"), V. V. & J. COLEMAN, LLC ("Coleman"), and BOTTLE ROCK POWER, LLC ("Bottle Rock").

2. Coleman, DWR, and Bottle Rock are sometimes collectively referred to as the "Parties" and each of the parties is sometimes referred to as a "Party." The Parties hereby agree as follows:

Recitals

3. Coleman is the owner of certain real property in Lake County, State of California, (the "Coleman Property"), described in the attached Exhibit A. Bottle Rock owns and operates the facilities ("Facilities") located on the Coleman Property for which Bottle Rock is the present lessee under the February 25, 1975, GEOTHERMAL LEASE AGREEMENT, as amended ("Lease"). DWR is a former owner of the Facilities and lessee under the said Lease.

4. Pursuant to that certain Purchase Agreement for Bottle Rock Power Plant and Assignment of Geothermal Steam Lease by and between DWR and Bottle Rock (as successor-in-interest to Bottle Rock Power Corporation), dated as of April 5, 2001, as amended ("Purchase Agreement"), DWR sold and Bottle Rock purchased DWR's rights and interests in and to the Facilities and the Lease.

5. Coleman hereby represents that it is the sole owner of the subject Coleman Property.

Release

6. Release of Coleman Claims. This Agreement is entered into voluntarily to settle any actual or potential claims and risks, whether known or unknown, Coleman has or may have against DWR or the State. In exchange for consideration by Bottle Rock this Agreement is accepted as full compromise, settlement and satisfaction of, and as sole consideration for the release and discharge of, all actions, claims and demands against DWR or the State which Coleman has or may have relating to the February 25, 1975, GEOTHERMAL LEASE AGREEMENT, including Section 16, as well

as any other claim or demand, known or unknown, present or in the future, related to the Lease or Facilities or any other documents relating to the property described in Exhibit A.

7. Discharge. Coleman and each of its owners, for themselves and on behalf of their successors, assigns, shareholders, members, parent entities, subsidiary entities, agents, directors, managers, officers and representatives, hereby release, acquit and forever discharge DWR and the State of and from any and all manner of actions, causes of actions, suits, debts, conveyances, agreements, damages, claims, liabilities, costs, expenses, demands, attorneys' fees and obligations of whatever nature, whether at law or in equity, whether based in tort, contract, or any other theory of recovery, known or unknown, anticipated or unanticipated, and however arising or accruing, which Coleman now has or may claim to have against DWR and/or the State, and which shall or may have accrued prior to the date of this Agreement related to the Lease or Facilities or any other documents relating to the property described in Exhibit A.

8. Release of Bottle Rock Section 2.4 Bond Obligations. In consideration of Coleman's release of DWR as set forth in Sections 6 and 7, DWR hereby releases Bottle Rock of its obligations regarding that certain Surety Bond No. 1039706, dated February 15, 2012 ("Surety Bond"), and in conjunction with its execution of this Agreement DWR shall (i) execute that certain release letter attached hereto as Exhibit B ("Release Letter") and (ii) send to LEXON Insurance Company, 256 Jackson Meadows Drive, Suite 201, Hermitage, TN 37076, (A) one (1) executed original of the Release Letter and (B) the original Surety Bond. As of the date hereof, DWR is aware of no claims DWR has or may have against the Surety Bond or otherwise arising under Section 2.4 of the Purchase Agreement.

9. Indemnity. Coleman agrees to indemnify, hold harmless, and defend the other Parties hereto from and against any and all actions, causes of action, liabilities, loss or expense (including attorneys' fees) reasonably incurred in the future by them, or any of them by reason of any inaccuracy in Coleman's representation that it is the owner of the Property on which the Facilities are located and that no other person is entitled to an interest in any claim or interest.

10. Severability. If one or more provisions of this Agreement are held to be unenforceable under applicable law, such provision(s) shall be excluded from this Agreement and the balance of the Agreement shall be interpreted as if such provision(s) were so excluded and shall be enforceable in accordance with its terms.

11. Assignment. This Agreement shall be binding upon and inure to the benefit of the Parties and their respective successors and permitted assigns. Neither this Agreement nor any of the rights or obligations hereunder may

be assigned without the prior written consent of the other Parties except that Coleman may assign all of its respective rights and obligations under this Agreement to any successor(s) in interest to the fee title of the Property.

12. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of California, without regard to its conflict of laws provisions.

13. General Release. Each Party hereby waives any and all rights or benefits that it may have under Section 1542 of the California Civil Code, which reads as follows:

> "A general release does not extend to claims which the creditor does not know or suspect to exist in his or her favor at the time of executing the release, which if known by him or her must have materially affected his or her settlement with the debtor."

14. Jurisdiction and Venue. The Parties hereby consent to the exclusive jurisdiction of the state courts sitting in California in the venue of Sacramento County in any action on a claim arising out of, under or in connection with this Agreement or the transactions contemplated by this Agreement.

15. Entire Agreement. This Agreement along with the exhibits attached hereto and the agreements referenced herein constitute the entire agreement of the parties hereto with reference to the subject matter hereof and supersedes any and all agreements, either oral or written, between the parties hereto with respect to its subject matter. Each Party acknowledges that no representation, inducements, promises, or agreements, orally or otherwise, have been made by any party or anyone acting on behalf of any party, which is not embodied herein, and that no other agreement, statement, or promise not contained in this Agreement shall be valid or binding.

16. Amendment and Waivers. This Agreement may be amended only by a written agreement executed by all Parties. Any amendment effected in accordance with this section will be binding upon all Parties and each of their respective successors and assigns. No delay or failure to require performance of any provision of this Agreement shall constitute a waiver of that provision as to that or any other instance. No waiver granted under this Agreement as to any one provision herein shall constitute a subsequent waiver of such provision or of any other provision herein, nor shall it constitute the waiver of any performance other than the actual performance specifically waived.

17. Third Parties. Nothing in this Agreement, express or implied, is intended to confer upon any person, other than the Parties and their successors and permitted assigns, any rights or remedies under or by reason of this Agreement.

18. Costs and Attorneys' Fees. In the event that any action, suit or other proceeding is instituted concerning or arising out of this Agreement or any transaction contemplated hereunder, the prevailing Party shall recover all of such party's costs and attorneys' fees incurred in each such action, suit or other proceeding, including any and all appeals or petitions there from.

19. Authority to Enter into Agreements. Each Party hereby represents and warrants to the other Parties that such Party has full power and authority to enter into the Agreement and all other documents and agreements to be executed and delivered in connection herewith, to execute and deliver this Agreement and to perform and observe its terms and provisions. This Agreement is subject to final approval by the California Department of General Services.

20. Authority of Persons Executing Documents. Each Party hereby represents and warrants to the other Parties that this Agreement has been executed and delivered by persons who are duly authorized to execute and deliver the same for and on behalf of such Party.

[*Remainder of page intentionally left blank*]

THE PARTIES have executed this Agreement by their respective authorized representatives and made effective as of the date last written below.

V. V. & J. COLEMAN, LLC

Robert Francisco, 7/27/12

Robert Francisco,
President and CEO

Date

BOTTLE ROCK POWER, LLC

Brian Harms, President

Date

STATE OF CALIFORNIA by and through the DEPARTMENT OF WATER RESOURCES

Mark W. Cowin, Director 8/14/2012

Mark W. Cowin, Director

Date

THE PARTIES have executed this Agreement by their respective authorized representatives and made effective as of the date last written below.

V. V. & J. COLEMAN, LLC

Robert Francisco, President and CEO	Date

BOTTLE ROCK POWER, LLC

Brian Harms, President	7/25/12 Date

STATE OF CALIFORNIA by and through the DEPARTMENT OF WATER RESOURCES

Mark W. Cowin, Director	Date

Exhibit A

Legal Description of the Coleman Property

Township 11 North, Range 8 West, M.D.M.

Parcel 1:

Section 5: Lots 5, 6, 9 and 10 of said section.

Parcel 2:

Section 6: Lot 10 of said section; EXCEPTING THEREFROM the following:

Beginning at the Southwest corner of Lot 10 and running North 608.6 feet; thence East 715 feet; thence South 608.6 feet; and thence westerly 715 feet to the place of beginning.

Parcel 3:

Section 5: N ½ of SW ¼ of said section 5.

Section 6: N ½ of SE ¼ of said section 6.

Containing a total of 350 acres, more or less.