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79-AFC-4

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EXHIBIT E
DOCUMENT 1 OF 5



AUTHORITY TO CONSTRUCT

Lake County Air Quality Management District

885 Lakeport Blvd. Lakeport, CA 95453 (707) 263-7000, Fax (707) 263-0421

Permit # A/C 80-034A

By:

Robert L. Reynolds, APCO

Type of Issuance:

Issuance Date: 10/31/05 Valid through: 10/31/06

Category: VIb

Operations under this permit must be conducted in compliance with all specifications and data included with the application under which this permit was issued. Equipment must be properly maintained and kept in good condition at all times. Post this permit or a facsimile (with conditions) in a conspicuous location on or near the equipment.

Contact: Ronald E. Suess, President
Mailing: Bottle Rock Power Corporation
Address: 1275 4th Street, No. 105
Santa Rosa, CA 95404

Facility: Bottle Rock Power Plant
Location: Sec 5, T11N, R8W, MDB&M Lake County
Francisco/Coleman Leasehold

Name and Equipment Description: Bottle Rock Power Plant

One (1) fifty-five (55) megawatt geothermal power plant with abatement equipment installed and operated as described in conditions attached to the Modified Determination of Compliance dated February 22, 1982.

Permit Conditions

Condition 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.

Condition 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 #1; d) 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. 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 Emergency Stacking System shall be available and fueled with low sulfur fuel of 0.5% or less for use in case of concurrent transmission line and generator failure.

Condition 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% 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.

Condition 4 Upon failure of H₂S abatement equipment, BRPP 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.

Condition 5 The cooling tower 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 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 LCAQMD shall be notified when cold start-ups in excess of 5 lbs. H₂S/hr are to occur and they cancel such activity if deemed necessary.

Condition 7 BRPP 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 conditions: 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. 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 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 trip and alarm; 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.

Conditions 8 through 23 are continued on the back of this card)

THIS PERMIT BECOMES VOID UPON CHANGE OF OWNERSHIP OR LOCATION

This permit does not authorize the emission of air contaminants in excess of those allowed by the California Health and Safety Code or the Regulations of the Lake County Air Quality Management District. This permit can not be considered permission to violate existing laws, ordinances, regulations, or statutes of other government agencies. The provisions of this Permit are severable. If any provision of this Permit is held invalid, the remainder of this Permit shall not be affected thereby.

- Condition 8** The 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 S at (707) 263-7000, 263-3225, or a number to be provided by the LCAQMD. BRPP 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, BRPP shall retrofit alarms on the malfunctioning equipment as possible. The log shall be available for inspection upon the request of the staffs of the LCAQMD, 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. BRPP shall provide a telephone number at which the Bottle Rock operator or a representative can be reached to ensure LCAQMD entry for inspection purposes within one (1) hour of notification. If for considerations of safety, BRPP cannot comply with such a specific request, BRPP shall forward in writing within one week a letter explaining the reasons entry within one hour could not be provided to the LCAQMD staff.
- Condition 10** BRPP'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 LCAQMD and CEC for comment and review at the earliest possible date and in time for such drawings to be implemented upon and modified if necessary. BRPP shall not be required to submit proprietary information unless specifically requested by the LCAPCO pursuant to Section 1010, Title 17, California Administrative Code.
- Condition 11** BRPP shall submit to the LCAQMD, ARB, and CEC the results of the pilot test program performed by Bechtel National, Inc., no later than February 1, 1982, within one month before the finishing of final design of the hydrogen peroxide/catalyst abatement system.
- Condition 12** Although the applicant is to be licensed upon the use of BACT as described in Condition #2, BRPP may use other means to comply provided the 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 #2. Any such changes shall be decided at a properly noticed public hearing to be convened jointly by the 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 LCAQMD concurrence upon any changes must be given.
- Condition 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.
- Condition 14** Within sixty (60) days after initial power production, BRPP shall demonstrate that the applicable emissions limitations are being maintained during normal power plant operations. BRPP shall submit a detailed performance test plan to the 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. BRPP's proposed test plan must receive 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, BRPP and the LCAQMD and recommend a binding procedure. Safe sampling access and ports to enable the LCAQMD to gather samples from the freshly treated condensate, cooling tower stack and treated gas from the Stretford system.
- Condition 15** Reports shall be issued quarterly to the 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.
- Condition 16** Within ninety (90) days after commercial operation BRPP shall file with the LCAQMD an application for a Permit to Operate together with all appropriate information to ensure compliance with the certification and submit permit fees.
- Condition 17** BRPP shall take all reasonable measures to comply with any future air pollutant or ambient standard or guideline adopted for present non criteria pollutants (i.e. mercury, boron, arsenic, Radon222, etc.) by responsible State or Federal agencies and/or comply with guidelines established as part of BRPP's certification by the California Energy Commission.
- Condition 18** BRPP shall promptly fund reasonable studies or tests as required by the LCAPCO to ascertain the impact of BRPP 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 H2S, SO2 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.
- Condition 19** The incoming steam to the power plant shall be analyzed quarterly and reported to the CEC and LCAQMD for Radon222 and its daughters, mercury, arsenic, ammonia, 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 quarterly testing will suffice. BRPP may join with the steam supplier in performing such tests. Results of any tests performed upon the cooling tower sludge shall be forwarded to the LCAQMD.
- Condition 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 LCAQMD staff upon request. The devices must have accuracies of +1 ppm, provide measurements at least every 15 minutes, and be accessible to LCAQMD staff. Flow rate measuring devices must have accuracies of +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 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, BRPP 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 LCAQMD staff upon request. The applicant shall on an annual basis after the date of the decision submit for approval by the LCAQMD, CEC and ARB a summary of the applicant's efforts to develop, purchase, 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 LCAQMD every three (3) months.
- Condition 21** BRPP 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 LCAQMD on a monthly basis in an hourly/day format and quarterly in a summary report acceptable to the APCO.
- Condition 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, radon222, 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 10 days, per the ARB particulate sampling schedule. BRPP, CEC, and 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 Cobbey area unless BRPP and the LCAQMD agree upon a mutually acceptable alternative site. If BRPP enters into a combined effort with other developers or an alternative monitoring program acceptable to the LCAQMD and CEC, this condition shall not be exercised.
- Condition 23** A) Regarding secondary abatement: BRPP 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 week supply shall remain on-site at all times. Alternatively, BRPP can provide information acceptable to the 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: BRPP 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 LCAQMD to enable compliance with DOC requirements to be established by the LCAQMD. B) Regarding the turbine by-pass to power plant main condenser system: BRPP 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% of the steam load. Required Future Reports & Documents: BRPP shall submit to the LCAQMD within 60 days 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. BRPP 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 system failure. BRPP, 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 BRPP and approved by the LCAQMD. A copy of the agreement shall be filed with the LCAQMD no less than 60 days prior to initial power plant operation.

EXHIBIT E
DOCUMENT 2 OF 5



AUTHORITY TO CONSTRUCT

Lake County Air Quality Management District
885 Lakeport Blvd. Lakeport, CA 95453 (707) 263-7000, Fax (707) 263-0421

Permit # AIC 80-018A

By: *Robert L. Reynolds*
Robert L. Reynolds, APCO

Type of Issuance:

Issuance Date: 10/31/05

Valid through: 10/31/06

Category: Vb

Operations under this permit must be conducted in compliance with all specifications and data included with the application under which this permit was issued. Equipment must be properly maintained and kept in good condition at all times. Post this permit or a facsimile (with conditions) in a conspicuous location on or near the equipment.

Contact: Ronald E. Suess, President
Mailing: Bottle Rock Power Corporation
Address: 1275 4th Street, No. 105
Santa Rosa, CA 95404

Facility: Bottle Rock Facility
Location: Sections 5&6, T11N, R8W, MDB&M, Lake
County
Bottle Rock / Francisco Leasehold, Cobb Valley,
California

Name and Equipment Description: Steam Transmission Line

one (1) geothermal fluid collection line, associated valving, condensate collection including re-injection line, and steam release abatement system with particulate and H2S removal servicing the Bottle Rock Geothermal Power plant

Permit Conditions

- Condition 1** The applicant shall notify the LCAQMD at least twenty four (24) hours in advance of any scheduled venting of the pipeline or well facilities.
- Condition 2** The Applicant will submit an application for and receive an Authority to Construct prior to the commencement of construction in the event any further actions are proposed to the pipeline system.
- Condition 3** An abatement contingency plan will be prepared and approved by the LCAQMD prior to operation of the steam transmission line outlining those actions to be taken to reduce emissions to acceptable levels in the event of extended simultaneous outage (in excess of 90 min.) of the power plant and associated steam transmission line abatement equipment. The plan will include at a minimum: 1) How field operations staff will be made aware of and be prepared to implement the plan; 2) Methods to be utilized to reduce emissions; 3) How LCAQMD staff can be assured of and aided in determining compliance with the plan; and 4) How notification of outage and reduction of emissions will occur.
- Condition 4** Road dust of three (3) minutes duration will be kept below Ringlemann 2 by use of water, oil or surfacing of roads during construction of the steam transmission line or by such other means deemed appropriate by the Applicant.
- Condition 5** If locks or secured gates are utilized to protect the project area, the LCAQMD will be provided keys or combinations and will have free access of entry and exit for District personnel or representatives for the purposes of monitoring and inspection.
- Condition 6** This permit is for a single geothermal steam transmission line servicing a single 55 megawatt power plant. The Applicant agrees that this permit does not establish a precedent for issuing future permits to the Applicant.
- Condition 7** Within eighty (80) days after initial operation the Applicant will submit to the LCAQMD an application for a Permit to Operate the pipeline system.
- Condition 8** Abatement equipment to be utilized and available to prevent venting of air pollutants into the ambient air shall include an Emergency Stacking H2S Abatement System* capable of treating 100% of the total steam flow delivered through the transmission line; a by-pass to the surface condenser of the serviced power plant; and the ability to remotely and within minutes cut back steam flow to not more than 5 lbs H2S/hr during full steam flow. All abatement facilities shall be used in series and individually as necessary to ensure that an emissions rate of not more than 5 lbs H2S/hr is maintained. The abatement system is described in detail in a document entitled, Emergency Steam Stacking H2S Abatement Study, Bottle Rock Steam Gathering System Final Report, February 1982, Job No. 52-3184-001 by Gibbs & Hill for MCR.
- Condition 9** Condensate bleeds shall be opened and utilized only as necessary during cold start-up of the geothermal fluid transmission line. Other bleeds necessitated during continuous normal operation of this line shall total less than 0.3 lbs H2S/hr during any one hour. If necessary, condensate collection lines shall be installed to ensure that H2S emissions of less than 0.3 lbs/hr.
- Condition 10** The APCO or his representative's approval shall be obtained prior to any cold start-up of the geothermal fluid transmission line which is expected to result in more than 5 lbs H2S/hr emissions. The APCO shall give his approval unless existing meteorological and/or prevailing air quality indicates poor air dispersion exists.

Conditions 10 through 21 are continued on the back of this card)

THIS PERMIT BECOMES VOID UPON CHANGE OF OWNERSHIP OR LOCATION

This permit does not authorize the emission of air contaminants in excess of those allowed by the California Health and Safety Code or the Regulations of the Lake County Air Quality Management District. This permit can not be considered permission to violate existing laws, ordinances, regulations, or statutes of other government agencies. The provisions of this Permit are severable. If any provision of this Permit is held invalid, the remainder of this Permit shall not be affected thereby.

the time. The APCO may cancel cold start-ups once initiated if, in his opinion, it becomes necessary.

Condition 11 If the chemical analysis of ambient air indicates to the APCO that substantial change to existing conditions is resulting from operations of Applicant's Bottle Rock pipeline systems, and the APCO determines that this change would require further study to ascertain compliance, including air dispersion analysis, applicant will perform or assist in obtaining financing of such studies deemed reasonable and prudent by Applicant and the APCO.

Condition 12 Applicant will perform or cause to be performed on a bi-annual basis, a source test for all components listed below upon written request by the District. The District will approve the sampling and chemical analytical techniques prior to planning for tests and be contacted forty-eight (48) hours prior to source testing in order to verify the analytical techniques.

STEAM CONDENSATE/TOTAL STEAM: Benzene, Ammonium (total), Arsenic, Bicarbonate and carbonate, Sulfates, Chlorides, Nitrates, Calcium Boron (total), Hydrogen sulfide (total), Fluorides (total), Iron, Conductivity (mhos 25°C), Mercury (total), pH, Total dissolved solids, and Total suspended solids.

WATER PHASE: Benzene, Particulate in Steam (ug particulate/g of steam, arsenic, lead, cadmium, total sulfur, boron), Mercury Vapor, Carbon Dioxide, Radon 222 and other gases, Methane, NonMethane Hydrocarbons, Carbon dioxide, Other non-gases as indicated by condensate analysis NESHAPS pollutants as requested, Steamflow and temperature.

Condition 13 After reasonable request by LCAPCO, Applicant shall ensure that reliable H₂S monitoring equipment shall be installed, calibrated, operated and maintained, capable of measuring H₂S from stacked and delivered steam once every 24 hours. Records and summary reports of gathered monitoring data shall be provided to the LCAQMD upon request.

Condition 14 Applicant shall install a device capable of monitoring total steam flows to the plant, stacking muffler or other likely venting points, and will provide records and summary reports of gathered data to the LCAQMD after reasonable request for same. This information shall be held as confidential if allowed by law and so requested by the applicant in writing per Section 533 of LCAPCD Rules and Regulations.

Condition 15 Significant deviations from conditions of this permit can only be granted by the APCO after a public hearing or by Hearing Board action.

Condition 16 In the event of generalized atmospheric conditions or localized dangerous contamination of such a nature as to constitute an emergency creating a danger to the health and welfare of the citizens of Lake County, the AQMD will take immediate action by requiring Applicant to reduce or discontinue air contaminant emissions immediately from fluid (steam) transmission lines. A hearing shall be held by the Air Quality Management District Hearing Board as soon as practical after such action has been taken to determine whether such reduction or discontinuance shall continue, and if so, under what conditions.

Condition 17 Steam stacking under normal operations shall be treated by the use of the turbine by-pass to power plant condenser and abated utilizing the power plant abatement system. A de-mister or water scrubber shall be used to ensure compliance with LCAQMD Rule 411 when venting directly downstream and utilizing the steam abatement emergency abatement system.

Condition 18 When the total accumulative emissions from this development project during construction reach the five (5) pounds per hour level the Applicant shall, at the request of the LCAPCO, assist in obtaining funding or install and maintain an air quality monitoring site (H₂S, wind direction, wind speed, temperature) to assist the AQMD in determining compliance and the validity of emission limitations as set forth in these conditions.

Condition 19 Regarding the turbine by-pass to main condenser power plant abatement system, Bottle Rock Power Corporation (BRPC) shall to the extent possible work to 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, to maintain the ability to successfully by-pass 100% of the steam load.

Required Future Reports & Documents: BRPC shall submit to the LCAQMD within 60 days of final CEC approval of the power plant modification to delete the EIC, a report detailing at a minimum:

1. The selection of the turbine bypass 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 abatement or power plant emissions control system.

3. Prior to operation of the Bottle Rock Power Plant, shall with the power plant operator 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 BRPC and approved by the AQMD. A copy of the agreement shall be filed with the LCAQMD no less than 60 days prior to initial power plant operation.

4. BRPC, to the extent equitable, shall assist (financially, etc.) in ensuring that a reliable system of by-passing steam to the power plant abatement system which would otherwise be vented to the air is available at BRPC/Bottle Rock. Problems which have been identified (i.e. valving) but which are not addressed by the power plant operator or shall be for the purposes of this permit considered a power plant operator responsibility. In this regard, BRPC shall specifically be required as a part of this permit to participate equitably in the resolution of any other unanticipated problems with the turbine by-pass to main condenser and power plant abatement system.

Condition 20 BRPC shall construct and operate an Emergency Steam Stacking Abatement System as referenced in Condition 8. It shall incorporate those features as described in the final report of MCR/Gibbs & Hill, Job No. 52-3184-001, and at a minimum the following recommended inclusions: de-superheat failure alarm, adequate steam source and injection rate to facilitate abatement of H₂S and aerosol/mist; emergency electric generator with sufficient power for the operation of all supply systems including electrical, chemical, etc., and enable continuous operation of the system independent of service line power; mist eliminators with ~50% 4um, and 95% 8um cutoffs; ability to automatically initiate abatement upon a direct venting event; sized to treat up to 1,000,000 pounds of steam per hour; proper winterization by insulation, heating, etc., of steam lines, OH storage and delivery lines, water source and all other components necessary for operation adversely effected by freezing weather; mechanisms to ensure proper operation and checks of the chemical delivery system; planned retrofit of a catalyst injection system should such be required to facilitate attainment of the specified H₂S emissions limitation; ability to treat 450 ppm H₂S steam at 500,000 lbs per hour for up to 100 hours without chemical delivery; and acoustical treatment of valves and piping to ensure system availability during stacking and compliance with use permit and occupational noise standards.

The above Emergency Stacking Abatement System shall be operationally perfected during the initial use phase. The mole ratio of H₂S in excess of five lbs/hr to NaOH shall be 1.0 to 6.0 (H₂S:NaOH) and for H₂O₂ it shall be 1.0 to 4.0 (H₂S:H₂O₂). Ratios may be altered as determined consistent with obtaining the most efficient use of oxidizing chemicals while attaining the five (5) lbs H₂S/hr limitation. At the LCAQMD's request, BRPC shall prepare and submit an abatement performance plan pursuant to LCAQMD Rule 655.

Condition 21 The above twenty (20) conditions are based on the assumption that this project as conditioned will not result in violation of LCAQMD Rules and Regulations. This permit is also subject to concurrence by the California Air Resources Board and the Environmental Protection Agency within thirty (30) days of receipt, or to becoming effective.

EXHIBIT E
DOCUMENT 3 OF 5

Bottle Rock Power Corporation

1275 4th Street, No. 105
Santa Rosa, CA 95404

Phone: 707.541.0976
Fax: 707.546.9139

17 July 2006

Robert L. Reynolds
Air Pollution Control Officer
Lake County Air Quality
Management District
885 Lakeport Blvd.
Lakeport, CA 95453

**RE: *Application for Authority to Construct - Modification
Bottle Rock Power Corporation - Bottle Rock Power Plant and
Steam Transmission Line***

Dear Mr. Reynolds:

The Bottle Rock Power Corporation (BRPC) herein submits this Application for Modification of the existing Authority to Construct to request modification of the current permit for the Bottle Rock Power Plant (A/C 80-034A) and the Steam Transmission Line (A/C 08-018A). The requisite List and Criteria that contain the specific details for all of the proposed modifications to the Plant and Steam Transmission Line are provided in the attached Application Package as well.

The refurbishment program is part of the effort to re-start the Bottle Rock Power Plant and re-institute steam production required to generate electricity. The purpose of the modifications of these A/C's is to provide enhancements that will improve reliability, safety, better ease of operation, and further minimize any environmental impacts. Several modifications have been identified that will contribute to a renewable energy power generating facility that will benefit the public and the industry as well as those associated with the project.

A total of seven (7) Modification Applications are contained in this Application package even though only the two A/C's are at issue. Some of the Applications contain more than one proposed modification. This combining was done as a matter of efficiency, since some of the sub-systems are the subject of multiple modifications.

**Bottle Rock
Power Corporation**

Robert Reynolds
17 July 2006
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Each Application is bundled to function as stand alone document within the total Package. Each bundle contains the actual Application form, the respective Part A List and Criteria, and applicable Drawings. Each Application bundle is identified for convenience. Other requisite information common to the Plant and the Steam Line is included as well.

Please call me if you have any comments and/or questions concerning this Application Package at 707.541.0976.

Respectfully,



Ronald E. Suess, JD
President
Bottle Rock Power Corporation

Attachments

Cc:w/o Attachments:

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Mary Jane Fagalde
Environmental Officer
Lake County Community Development Department
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**Bottle Rock
Power Corporation**

Robert Reynolds
17 July 2006
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256 Autumn Eve Street
Henderson, NV 89074-7838

Marie Buric
Associate Land Agent
California Department of Water Resources
1416 9th Street, Room 425
Sacramento, CA 95814

Bottle Rock Power Corporation

Application for Authority to Construct Modification for Bottle Rock Power Plant and Steam Transmission Line

Listing of Attachments

- 1. Modification of A/C 80-034A (Plant)**
 - Mechanical Vacuum Pumps and Other Sour Gas Line Changes
 - Application for Authority to Construct –Modification
 - Application List and Criteria Data
 - Drawings

- 2. Modification of A/C 80-034A (Plant)**
 - Stretford Delay Tank Skimmer and Stretford Oxidizer Tanks Air Spargers
 - Application for Authority to Construct –Modification
 - Application List and Criteria Data
 - Drawings

- 3. Modification of A/C 80-034A (Plant)**
 - Sulfur Cake Filter System
 - Application for Authority to Construct –Modification
 - Application List and Criteria Data
 - Drawings

- 4. Modification of A/C 80-034A (Plant)**
 - In-line Activated Carbon Filter for Mercury Removal
 - Application for Authority to Construct –Modification
 - Application List and Criteria Data
 - Drawings

- 5. Modification of A/C 80-034A (Plant)**
 - Secondary Treatment AECS for Condensate
 - Application for Authority to Construct –Modification
 - Application List and Criteria Data
 - Drawings

6. Modification of A/C 80-034A (Plant)

- Distributive Control System
 - Application for Authority to Construct –Modification
 - Application List and Criteria Data
 - Drawings

7. Modification of A/C 80-018A (Line)

- Steam Transmission Line
(Valve Additions, De-Superheat Change, Stacking AECS-50%, Stacking VFD)
 - Application for Authority to Construct –Modification
 - Application List and Criteria Data
 - Drawings

8. Facility Plot Plan



Lake County Air Quality
 Management District
 885 Lakeport Blvd.
 Lakeport, CA 95453
 707-263-7000 / fax 263-0421

Robert L. Reynolds
 Air Pollution Control Officer
 bobr@pacific.net

Application For An Authority To Construct (& Attached List and Criteria)

Type of Application: New Facility Modification Existing Facility, Not Previously Permitted

Contact Name: Ronald E. Suess, President

Facility Name: Bottle Rock Power Plant

Business Name: Bottle Rock Power, LLC

Mailing Address: P.O. Box 326

Cobb, CA 95426

Facility or Project Name:
Bottle Rock Power Plant

Permit #: A/C 80-034A Category III

Description of the Process/Purpose of the Facility:

Electric Generation

Equipment Location/Legal Description:
Vacuum pumps will be located on the South East side of the power block building.

Estimated Construction dates:

Start - July 2006 Completion - Sept. 2006

Description of equipment by make, model, size and type:

NASH vacuum pumps, model XL-350

Diagram/Plot Plan of Facility Enclosed? Yes No

Additional List and Criteria Data Attached: Yes No (List and Criteria are attached)

If no give reason:

Operating Schedule: 24 Hours/Day 7 Days/Week 52 Weeks/Year

Production Rates: <5lbs /hour, _____ /Day, _____ /Year (Specify Units)

Lat-N: 38-50-35.0 N
 Long-W: 122-46-39.0 W

Amount, nature, and duration of emissions: in accordance with existing permit

Attach a Facility and Equipment Diagram, Specification Sheet(s), and Process Flow Diagram. Show the location and distance to adjacent residences, businesses, schools and hospitals.

Type and efficiency of air pollution control equipment:

Type and Estimated Quantity of fuel use: diesel 500 gal/yr (%S): 0.5

Ten year projected expansion plans: No expansion above the 55 Mega Watt plant rating

I have read and understand the LCAQMD's List and Criteria for Authority to Construct Permits. I understand that I am responsible for any information listed herein or requested pursuant to this application. Based on information and belief formed after reasonable inquiry, the statements and information presented in this application and supplemental documentation are true, accurate, and complete.

Ronald E. Suess
 Signature of authorized representative of firm

Date: 18 July 2006

Name: Ronald E. Suess

Title: President

Telephone: 707-928-4578

FAX: 707-928-4581

Lake County Air Quality Management District List and Criteria Data

Part A

I. Name

- A. Bottle Rock Power, LLC
- B. Production of Geothermal Steam for Generation of Electricity
- C. Ronald E. Suess, President
Bottle Rock Power, LLC
P.O. Box 326
Cobb, CA 95426
707-928-4578
- D. Geothermal Lease
- E. Estimated Starting Date: 01 July 2006
Estimated Completion Date: 30 September 2006
This range of dates represents refurbishing activities for the Bottle Rock Power Plant.

II. Type of Application

- A. 1 Original Application
- B. 2 Modification: Modify Existing to Authority to Construct A/C 80-034A

III. Description of Facility

- A. Location
 - 1. Section: 5; Township: 11 North; Range: 8 West; Benchmark & Meridian: Mount Diablo Meridian (MDM); County of Lake. These coordinates describe the location of the Plant and all the equipment that supports it. (Lat-N = 38-50-35.0 N and Long-W = 122-46-39.0 W)
 - 2. Plot Plan
 - a. Power Plant Location (**See Attachment 1**)
 - b. Same (**See Attachment 1**)
 - c. Not Applicable
 - d. The adjacent property owners are primarily residents in a rural setting with a geothermal development immediately adjacent to BRPP and to the southwest of the BRPP.

- e. Abatement chemicals and support products, if any at all, will be stored onsite within the designated areas inside the bermed Plant yard and held in appropriate container specific for that product.
 - f. Emissions control and air monitoring equipment are described in A/C 80-034A
 - g. Not Applicable
 - h. There should be minimal impact, if any at all, upon ambient air quality as a result of this change.
- B. The Bottle Rock Power Plant and Steamfield use geothermal steam to generate electricity for distribution to a service area controlled by the participating transmission owner and the California Independent System Operator. Various equipment are integrated with the Plant to support the electricity generating process. These include, but are not limited to, the cooling tower, the Stretford system, the Plant control apparatus, and the condenser system.

IV. Description of Process

- A. The BRPC proposes to install two fifty percent (50%) capacity vacuum pumps to assist in the removal of non-condensable gases (NCG) from the power cycle. The current NCG removal system consists of two stages of steam jet ejectors. This system requires auxiliary steam to provide motive force in order to operate. Nevertheless, the ejectors will remain fully functional and serve as a backup system to the vacuum pumps.

The seal water from the vacuum pumps will be returned either to the hotwell or to the rich condensate system. Both of these options have been and remain integral Plant systems and are always available for use.

Vacuum pumps are slightly more energy efficient than the steam jet ejectors but the primary advantages to the Power Plant are as follows:

1. The use of vacuum pumps will significantly reduce (almost eliminate) the need to vent unabated steam/NCG's during any Power Plant start-up. Vacuum on the system can be pulled by using the pumps, and the steam transmission line can be warmed by passing steam through the turbine bypass and directly into the condenser.
2. The vacuum pumps will move the NCG stream to the Stretford Process at a higher pressure. This will reduce back pressure system shut downs and reduce difficulties caused by minor restrictions (plugging) in the Stretford equipment.
3. Vacuum pumps produce less ambient noise than do steam jet ejectors.

See the attached drawings that shows the vacuum pumps installed in relation to the existing steam jet ejectors (**See Attachment 2**) and the specification of the vacuum pumps (**See Attachment 3**).

Hydrogen Sulfide (H₂S) Sour Gas Line

All of the existing moisture traps on the sour gas line will be replaced with traps of superior design. All of the original traps show evidence that they leak and allow non-condensable gases to flow back to the hotwell. No additional moisture traps will be added to the sour gas line.

The small vent line that tees off the sour gas line and discharges to atmosphere at the top of the turbine building has been separated from the sour gas line and a blank flange has been installed in lieu of its connection with the sour gas line. The installation of this flange eliminates any possible discharge of emissions from this vent line. This line has been used in the past during Plant start up. Steam was passed through the steam jet ejectors to pull vacuum on the system as required before steam could flow to the turbine. That auxiliary steam put through this vent directly enters into the atmosphere unabated. See the attached cut-a-way drawing (**See Attachment 4**) that shows how and where the vent was separated from the sour gas line and flanged so as to prevent entry of gases from the line into the vent.

- B. Not Applicable
- C. The pumps are Nash vacuum pumps, model XL-350, reference attachment 3 for pump and motor details.
- D. The operation of the Nash pumps will be on a continuous 24 hours basis as long as the Plant is operating.
- E. Throughput of Nash pumps dependent upon mass steam flow through turbine and corresponding ratio of non-condensable gases contained in the steam.
- F. Not Applicable
- G. Equipment: Nash vacuum pumps
 1. Not known at this time; will provide to LCAQMD as soon as received.
 2. Both temperatures the same; greater than 100° F.
 3. The seal water from the vacuum pumps is potential emission point. H₂S-rich seal water will be returned either to the hotwell or to the rich

condensate system. Both of these options have been and remain integral Plant systems and are always available for use.

4. Dependent upon hydrogen sulfide concentration in the non-condensable gas stream, but should not exceed five percent.
5. Not Applicable
6. Operation of Nash pumps will be continuous in concert with operation of Plant.

H. Description of Control Equipment

1. Vacuum pumps will be controlled by the Digital Control System.
2. Not known at this time; will provide to LCAQMD as soon as known.
3. Same (See 'IV-G-4', above).
4. Not Applicable
5. See 'IV-G-3', above.
6. Not Applicable
7. Electric energy consumption rate not available at this time; will provide to LCAQMD as soon as available.

I. Describe Locations and Amounts of Emissions

1. Same as 'IV-G-3', above.
2. Not Applicable
3. Not Applicable
4. Flow rate of exhaust gases: Not Available
5. Outlet temperature: Temperature will be in excess of 100° F.
6. Estimate the quantity of each pollutant emitted: Not Applicable

J. Describe Emissions of a "Fugitive" Nature

1. Fugitive emission from pumps should be minimal, if any at all; H₂S-rich seal water will be returned either to the hotwell or to the rich condensate system. Both of these options have been and remain integral Plant systems and are always available for use.

K. Calculations: Not Applicable

V. Description of Fuel Burning and Fuel

A. Not Applicable

B. Not Applicable

C. Not Applicable

VI. Describe Storage Facilities

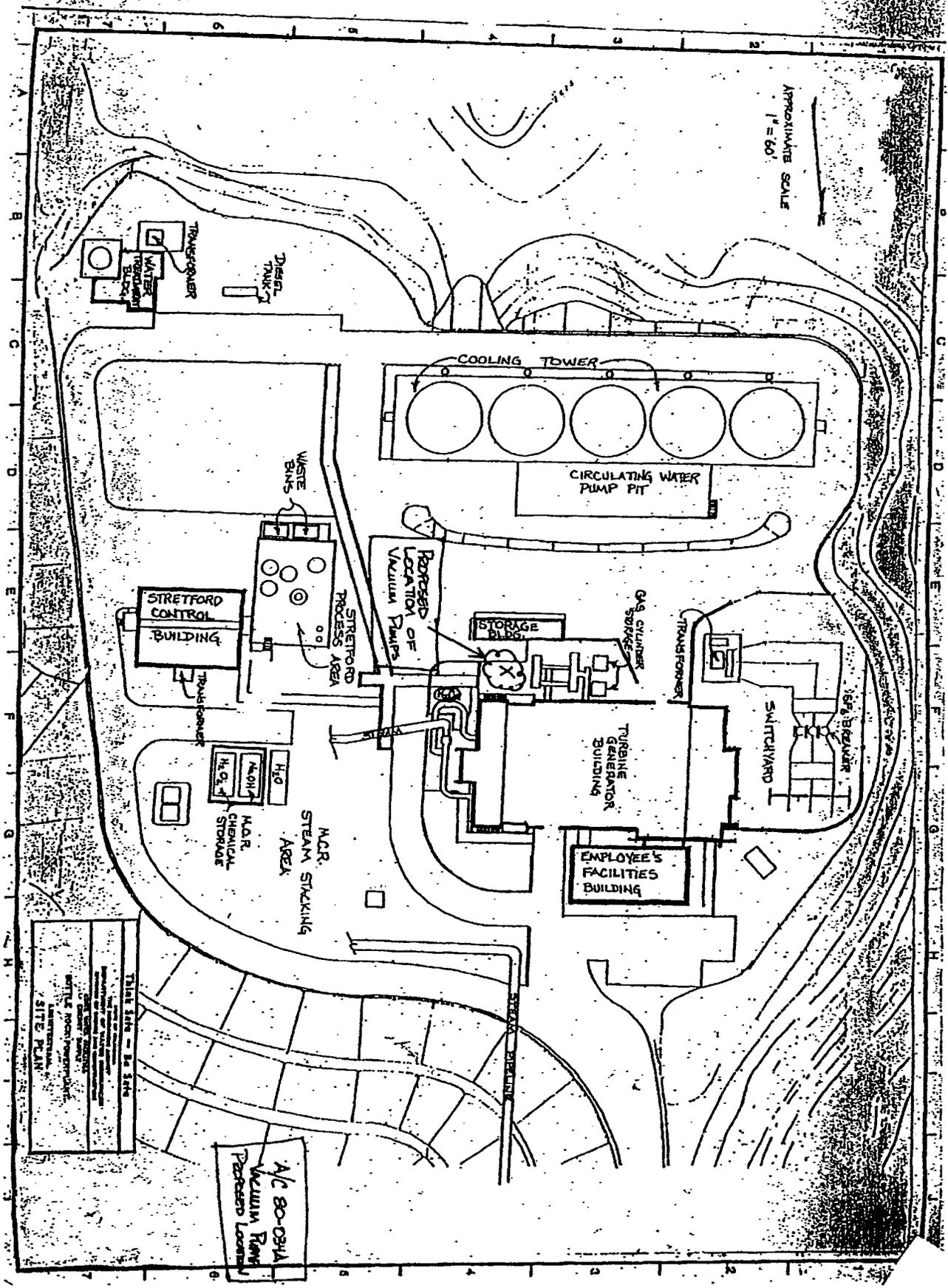
A. Not Applicable

B. Not Applicable

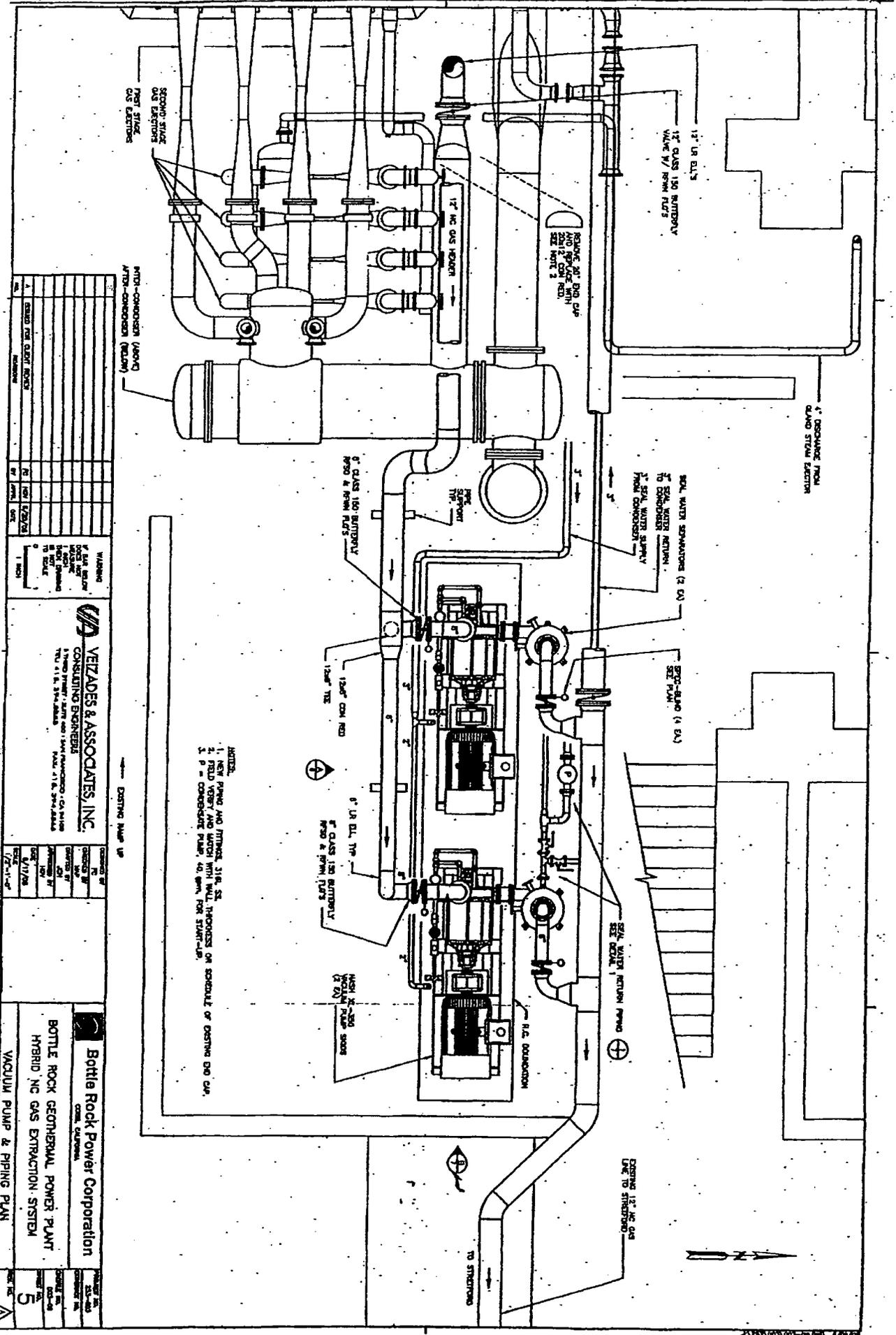
C. Not Applicable

D. Not Applicable

ATTACHMENT 1



ATTACHMENT 2



- NOTES:**
1. NEW PIPING AND FITTINGS, 316, SS.
 2. FIELD VERIFY AND MATCH WITH WALL THICKNESS ON SCHEDULE OF EXISTING DIO CAP.
 3. 8\"/>

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VEZADES & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 4700 STEWART AVE. SUITE 400 | SAN FRANCISCO, CA 94108
 TEL: 415.394.4848 FAX: 415.394.4844

NO.	DESCRIPTION	DATE	BY	CHKD.
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Bottle Rock Power Corporation
 BOTTLE ROCK GEOTHERMAL POWER PLANT
 HYBRID NC GAS EXTRACTION SYSTEM
 VACUUM PUMP & PIPING PLAN

ATTACHMENT 3

Gardner Denver Nash LLC

Elizabeth, PA 15037

TITLE: Catalogue Cuts			
PURCHASER: BOTTLE ROCK POWER		PO#:	176-06
USER: BOTTLE ROCK POWER		PROJECT #:	101843
		SALES #:	101284
SCALE: NTS	DRAWN BY: M.A.	APPVD. BY: ROB	DATE: 06/07/06
DWG. NO.: 101843-CAT		REV. 0	DATE: 06/07/06
DO NOT USE THIS PRINT FOR CONSTRUCTION UNLESS CERTIFIED			
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<ul style="list-style-type: none"> <input checked="" type="checkbox"/> For Approval: Tentative shipping promise is established upon return of approved print. MA 06/07/06 <input type="checkbox"/> For Final Approval: This print covers equipment on which mat'l has been ordered, however, no mfg. has started. Delivery is established upon return of final print. _____ <input type="checkbox"/> Certified for Construction: This print covers equipment on which mfg. has started. Any change is subject to price and shipping promise adjustment. _____ 			

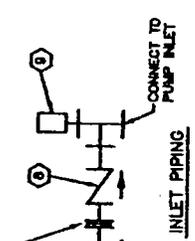
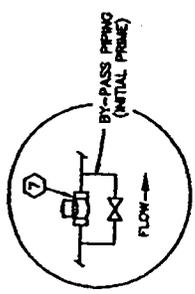
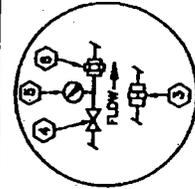
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BILL OF MATERIAL

KEY	ITEM
1	VACUUM PUMP-XL350
2	STRAIGHT
3	FLOW CONTROL VALVE
4	ADJUSTING COCK
5	PRESSURE GAUGE
6	DRIFTE UNION
7	SOLENOID VALVE
8	INLET CHECK VALVE
9	RELIEF VALVE

- NOTES**
- REFER TO ENGINEERING DATA SHEET FOR CERTIFICATION AND ITEMS SPECIFICALLY FURNISHED FOR THIS ORDER.
 - STAINLESS STEEL TEMPORARY SCREEN FOR PUMP INLET WILL BE SUPPLIED BY MANUFACTURER FOR PROTECTION FROM FOREIGN MATERIAL DURING START-UP PERIOD. TWO SCREENS (28"-6.4" NO. 30 MESH) WILL BE USED WITH STAINLESS STEEL PUMPS. THE NO. 30 MESH SCREEN SHOULD BE INSTALLED ON THE UPSTREAM SIDE OF THE 28"-6.4" MESH SCREEN.
 - FOUNDATION BOLTS ARE NOT FURNISHED.
 - IRON PUMP FLANGES ARE FLAT FACE. ST. STL. PUMP FLANGES ARE RAISED FACE. FLANGES CONFORM TO ANSI CLASS 150/30 BOLT PATTERNS. BOLT HOLES STRAIGHT CONTIGUOUS.
 - PUMP PIPE THREAD CONNECTIONS ARE ANSI B1.20.1.
 - FOR INSTALLATION AND OPERATION SEE INSTRUCTION BULLETIN.
 - STUFFING BOX DRIP TRAY DRAIN CONNECTION FOR PUMPS WITH PACKING, PIPE AWAY TO DRAIN.
 - SOLIDLY GROUND UNIT. DO NOT USE PIPING SYSTEM FOR GROUND.
 - SHAFT DRIVE END DIAMETER AND KEYWAY COMPLY WITH ISO/7730 (SHAFTS AND KEYS) AND ISO/773 (SHAFT DIA).

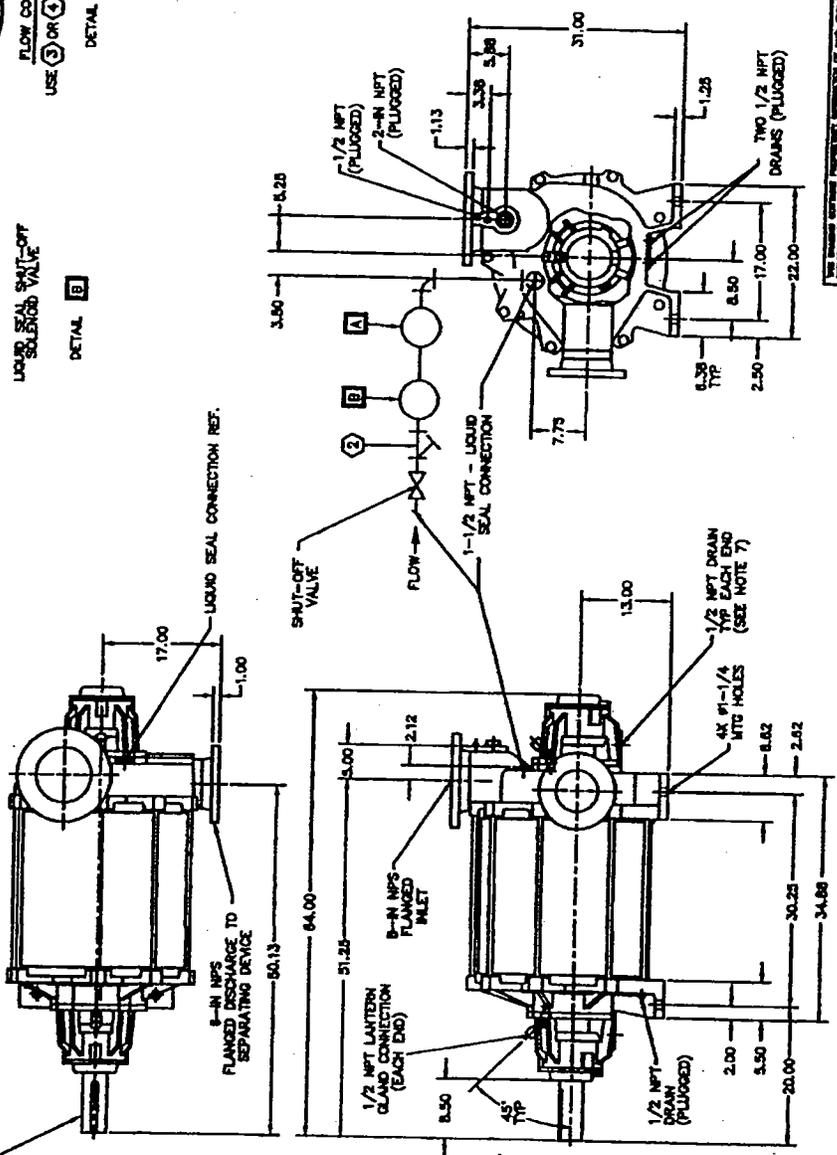


RECOMMENDED LOCATION OF TEMPORARY INLET SCREEN (SEE NOTE 2)

FROM SYSTEM

OPTIONAL DRIFT POCKET MANDATORY FOR ST. STL. PUMPS

40.033	+0.013	MM	SHAFT DIA
22	X 9	MM	KEYWAY
3.3478	-0.0003	SHAFT DIA	
286	X .354	KEYWAY	



VIEWED AT A-A
DIRECTION OF ROTATION IS CLOCKWISE

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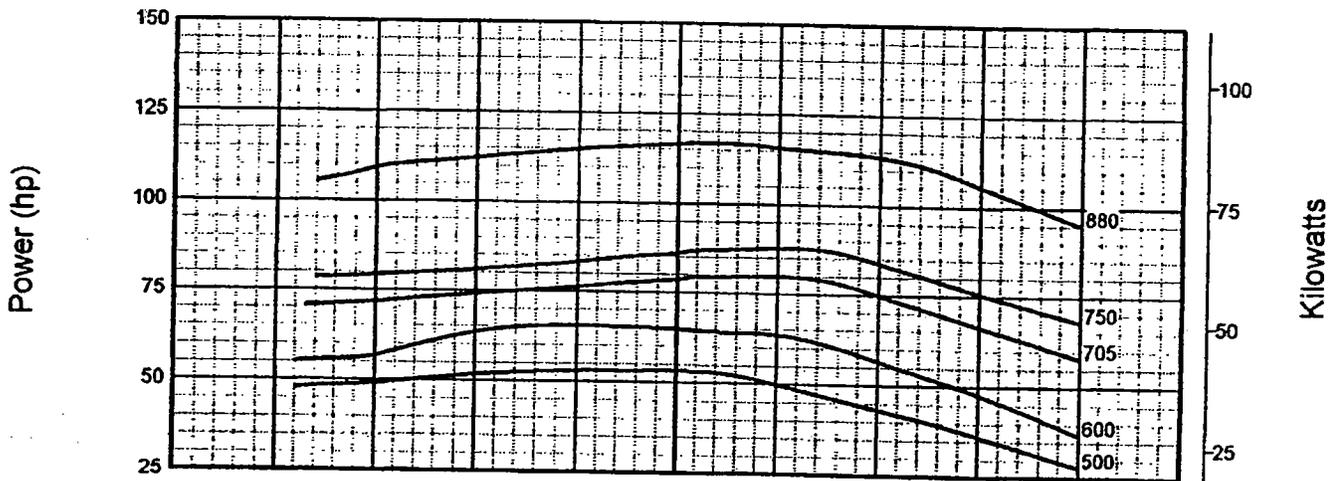
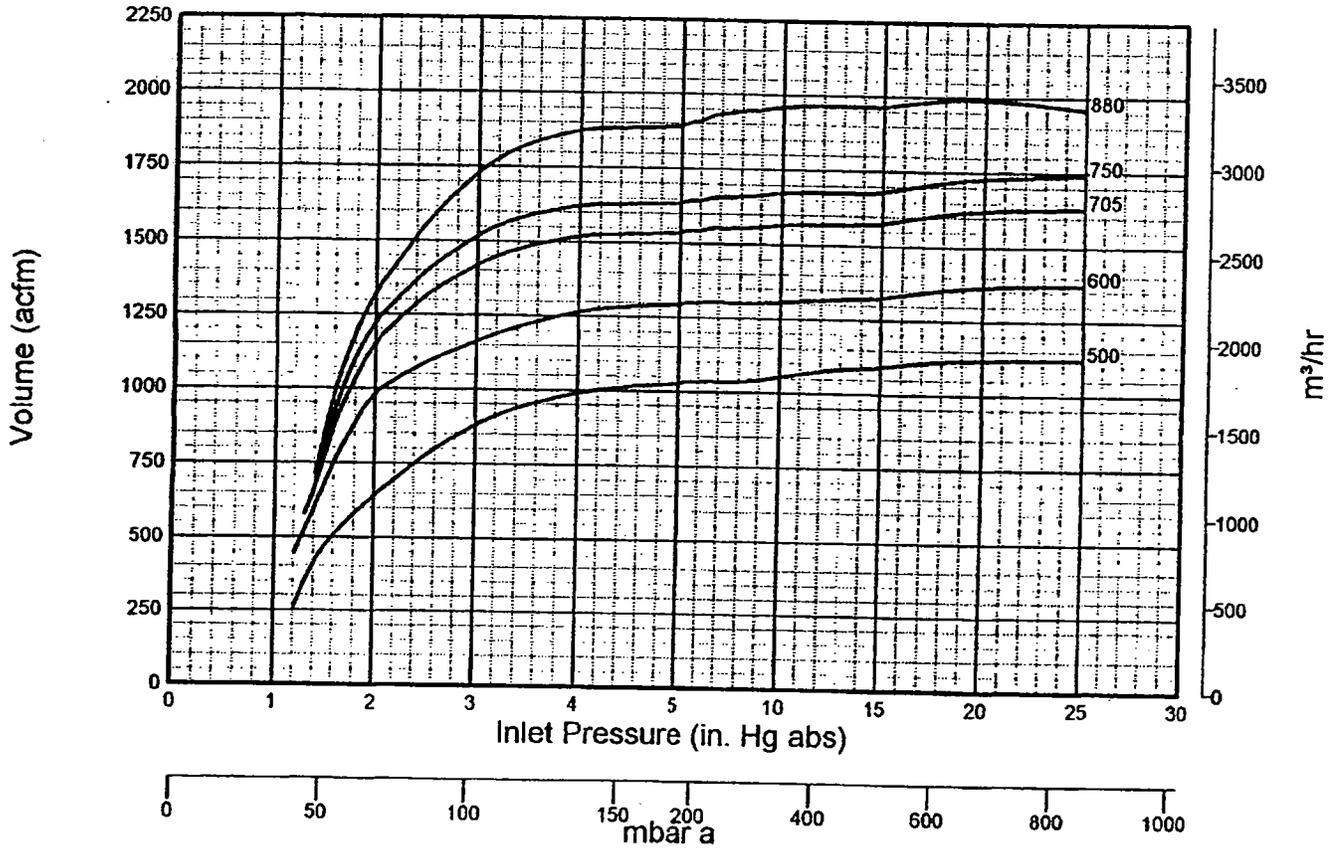
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Vectra XL 350 Vacuum Pump

L_series

Performance Data



1. Performance curves are based on operating conditions with saturated air at a temperature of 68° F (20° C), operating water at a temperature of 60° F (15° C) and a discharge pressure of 29.92 in. HgA (1013 mbar).
2. Tolerance to HEI/Pneurop standards.
3. Operating conditions other than stated above may result in different capacities or power. Please contact the home office for details.
4. Reference Curve No. EN1391-001 rev B

TOSHIBA INTERNATIONAL CORPORATION Industrial Division / Houston Motor Plant SQUIRREL CAGE INDUCTION MOTOR PERFORMANCE SPECIFICATIONS	INDEX	MPCF-1033
	SHEET NO.	1 of 1
	ISSUED	11/08/96
	SUPERSEDES	10/06/95
	REVISION	1
	WRITTEN BY	R. EVANS
	APPROVED BY	<i>Jay Bugbee</i>

CUSTOMER: Gardner Denver
TIC SR No.:

Customer PO:
Customer Tag: 101843 Bottle Rock

MOTOR NAMEPLATE DATA			
H.P.: 150	VOLTS: 460	3 PH/ 60 Hz	S. RPM: 900
FRAME: N449T	ENCL: TEFC	FLAMPS: 106	FLRPM: 890
FORM: FBK1	S.F.: 1.15	NEMA DESIGN: B	INSUL CLASS: F
TYPE: TTKII	AMB.: 40°C	CODE: G	DUTY: CONT.
MODEL No.: B1508FLF4BMHL		KW: 112	Serial No.:
NOM. EFF.: 95.0	MIN. EFF.: 94.5	P.F.: 79.0	

AMPERAGE	TORQUES	** BEARINGS:
Locked Rotor: 1085	FULL LOAD (lb-ft.): 885.0 LOCKED ROTOR (%): 57 BREAK DOWN (%): 248	Drive End: NU322C3 Opposite Drive End: 6318C3

EFFICIENCY (%)	POWER FACTOR (%)
FULL LOAD: 95.3 3/4 LOAD: 94.8 1/2 LOAD: 93.3	FULL LOAD: 79.0 3/4 LOAD: 75.2 1/2 LOAD: 66.1

ALL CHARACTERISTICS ARE AVERAGE EXPECTED VALUES BASED UPON RATED VOLTAGE, FREQUENCY AND SINEWAVE POWER INPUT.

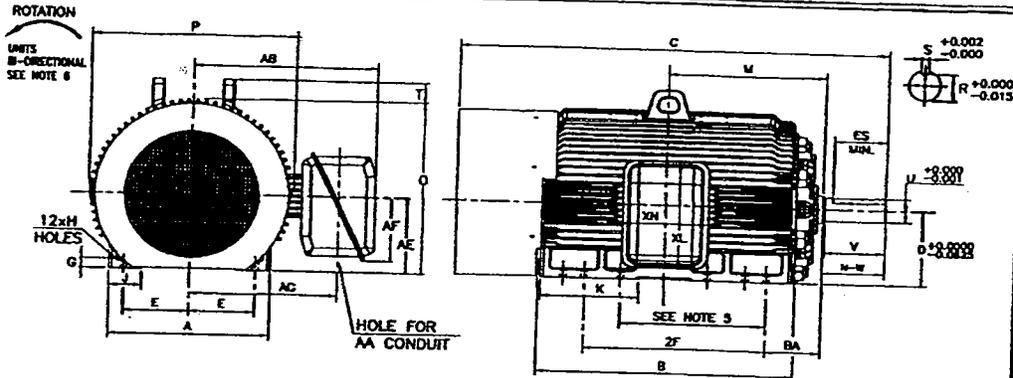
* TEMPERATURE RISE WILL BE CONSISTENT WITH INSULATION, AMBIENT AND SERVICE FACTOR AS DEFINED BY NEMA-MG-12.43 OR -20.40.

** BEARINGS ARE THE ONLY RECOMMENDED SPARE PART(S).

CERTIFIED BY:
DATE: May 11, 2006

INDEX	MDSL0001-35
REV. LEVEL	3
SHEET	1 OF 1

TOSHIBA/HOUSTON TOTALLY-ENCLOSED FAN-COOLED Fr. N447T-N449T
HORIZONTAL FOOT-MOUNTED BELT DRIVE
4-8 POLE



UNITS: INCHES

FRAME SIZE	MOUNTING				CONDUIT BOX							
	E	2F	H	BA	AA	AB	AC	AE	AF	XL	XN	
N447T	9.00	20.00	0.81	7.50	4.00	25.1	19.9	11.0	8.7	15.5	11.7	
N449T	9.00	25.00	0.81	7.50	4.00	25.1	19.9	11.0	8.7	15.5	11.7	

FRAME SIZE	MOTOR DIMENSIONS										
	A	B	C	D	G	J	K	M	O	P	T
N447T	22.0	34.7	59.0	11.00	1.1	4.5	13.8	21.3	25.1	28.1	2.9
N449T	22.0	34.7	59.0	11.00	1.1	4.5	13.8	21.3	25.1	28.1	2.9

FRAME SIZE	SHAFT EXTENSION			KEY SEAT			BEARINGS		MAXIMUM WEIGHT
	N-W	V	U	R	S	ES	LS	OS	
N447T	8.50	8.25	3.375	2.88	0.875	6.91	NU322C3	6318C3	3800 lbs.
N449T	8.50	8.25	3.375	2.88	0.875	6.91	NU322C3	6318C3	3800 lbs.

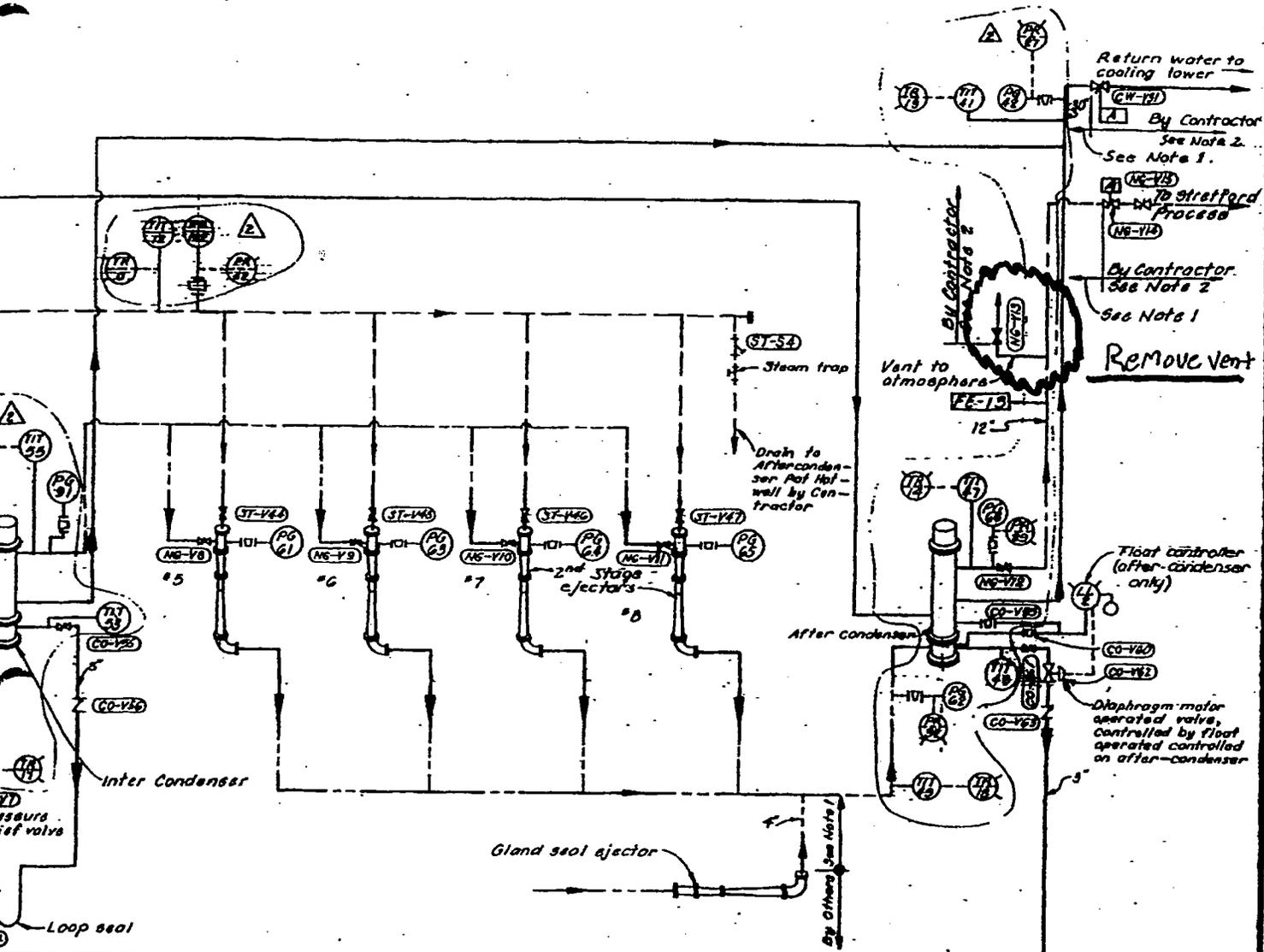
- NOTES:
1. DIMENSION V REPRESENTS LENGTH OF STRAIGHT PART OF SHAFT.
 2. CONDUIT BOX MAY BE ROTATED IN 90° INCREMENTS
 3. KEY DIMENSIONS EQUAL S x S x 6.88 (MOTOR SUPPLIED WITH KEY)
 4. MOTOR WEIGHT SHOWN IS MAXIMUM HORSEPOWER IN FRAME.
 5. DIMENSION FOR 447 MOUNTING EQUAL (2F) LOCATED IN 447 SIDE VIEW.
 6. STANDARD UNITS USE BI-DIRECTIONAL FAN. OPPOSITE ROTATION AVAILABLE ONLY BY CONNECTION CHANGE.

ALL DATA SUBJECT TO CHANGE WITHOUT NOTICE.
FOR CONSTRUCTION USE ONLY CERTIFIED DATA.

CERTIFIED DATA

CUSTOMER: _____ P.O. NO.: _____ TAG NO.: _____
 MOTOR MODEL NO.: _____ TOSHIBA FILE NO.: _____
 HP: _____ RPM (SYN.): _____ VOLTAGE: _____ Hz: _____
 FRAME SIZE: _____ LOG NO.: _____ LOG REV. LEVEL: _____
 REMARKS: _____
 PER: _____ ISSUE DATE: _____ SUPERSEDES: _____

ATTACHMENT 4



NOTES

1. Contractor shall install Department furnished Gas Removal System.
2. Contractor shall furnish and install all piping and valves unless otherwise noted.
3. Gas removal system shown is preliminary and subject to change to suit manufacturer's design.
4. All inlet steam flows include noncondensable gases.
5. Instrumentations shown for the ejectors and the condensers are typical. All instrumentations shall be furnished and installed by the Contractor.

LEGEND

(NG-V) Noncondensable gas valve numbers		Gate valve
(CO-V) Condensate line valve numbers		Cock valve
(ST-V) Steam line valve numbers		Plug valve
(CW-V) Circulating water system valve numbers		Butterfly valve
(ST-S) Steam line strainer numbers		Pneumatic cylinder operator
		Water line
		Steam line
		Gas line
		Steam/Gas line

Think Safe - Be Safe

STATE OF CALIFORNIA
 DEPARTMENT OF INDUSTRIAL RELATIONS
 DIVISION OF OCCUPATIONAL SAFETY AND HEALTH

**STATE WATER FACILITIES
 ENERGY SUPPLY
 CONSTRUCTION OF BOTTLE ROCK POWERPLANT
 MECHANICAL**

**GAS REMOVAL SYSTEM
 SCHEMATIC PIPING DIAGRAM**

By Contractor See Note 2

Condensate return to condenser hot well.

See Note 1

Note: For Sub-Pic Condenser Cooling Water Inlet and outlet Instrumentation, See page 3-11, 3-12, 3-13, 3-14, 3-15, 3-16, 3-17, 3-18, 3-19, 3-20, 3-21, 3-22, 3-23, 3-24, 3-25, 3-26, 3-27, 3-28, 3-29, 3-30, 3-31, 3-32, 3-33, 3-34, 3-35, 3-36, 3-37, 3-38, 3-39, 3-40, 3-41, 3-42, 3-43, 3-44, 3-45, 3-46, 3-47, 3-48, 3-49, 3-50, 3-51, 3-52, 3-53, 3-54, 3-55, 3-56, 3-57, 3-58, 3-59, 3-60, 3-61, 3-62, 3-63, 3-64, 3-65, 3-66, 3-67, 3-68, 3-69, 3-70, 3-71, 3-72, 3-73, 3-74, 3-75, 3-76, 3-77, 3-78, 3-79, 3-80, 3-81, 3-82, 3-83, 3-84, 3-85, 3-86, 3-87, 3-88, 3-89, 3-90, 3-91, 3-92, 3-93, 3-94, 3-95, 3-96, 3-97, 3-98, 3-99, 3-100.

Float controller for condenser pump recirculation valve, FL-11, FL-12, FL-13 and FL-14.

By Contractor

SUBMITTED: <i>L.P. Jensen</i> APPROVED: <i>[Signature]</i> DATE: <i>Aug 28 1961</i>	APPROVED: <i>K.G. Dorett</i> DATE: <i>AUG 28 1961</i>
P. Lee G. Jensen P. Lee G. Jensen	X-113-5 224



Lake County Air Quality
 Management District
 885 Lakeport Blvd.
 Lakeport, CA 95453
 707-263-7000 / fax 263-0421

Robert L. Reynolds
 Air Pollution Control Officer
 bobr@pacfic.net

Application For An Authority To Construct (& Attached List and Criteria)

Type of Application: New Facility Modification Existing Facility, Not Previously Permitted

Contact Name: Ronald E. Suess, President
 Business Name: Bottle Rock Power, LLC
 Mailing Address: P.O. Box 326
Cobb, CA 95426

Facility Name: Bottle Rock Power Plant
 Facility or Project Name: Bottle Rock Power Plant

Permit #: A/C 80-034A Category III

Description of the Process/Purpose of the Facility:

Electric Generation

Equipment Location/Legal Description:

The Stretford facility is located on the East side of the power plant

Estimated Construction dates:

Start: July 2006 Completion: Sept. 2006

Description of equipment by make, model, size and type:

Add a ten (10) inch skimming line to support the existing six (6) inch skimming lines. Add an additional sparging header inside the delay tank that will evenly distribute additional oxidizers into the Stretford solution.

Diagram/Plot Plan of Facility Enclosed? Yes No

Additional List and Criteria Data Attached: Yes No (List and Criteria are attached)

If no give reason:

Operating Schedule: 24 Hours/Day 7 Days/Week 52 Weeks/Year

Production Rates: _____ /hour, _____ /Day, _____ /Year (Specify Units)

Lat: N 38-50-35.0 N

Long: W 122-46-39.0 W

Amount, nature, and duration of emissions: in accordance with existing permit

Attach a Facility and Equipment Diagram, Specification Sheet(s), and Process Flow Diagram. Show the location and distance to adjacent residences, businesses, schools and hospitals.

Type and efficiency of air pollution control equipment:

Type and Estimated Quantity of fuel use: diesel 500 gal/yr (%S) 0.5

Ten-year projected expansion plans: No expansion above the 55 Mega Watt plant rating

I have read and understand the LCAQMD's List and Criteria for Authority to Construct Permits. I understand that I am responsible for any information listed herein or requested pursuant to this application. Based on information and belief formed after reasonable inquiry, the statements and information presented in this application and supplemental documentation are true, accurate, and complete.

Ronald E. Suess
 Signature of authorized representative of firm

Date: 18 July 2006

Name: Ronald E. Suess

Title: President

Telephone: 707-928-4578

FAX: 707-928-4581

Lake County Air Quality Management District List and Criteria Data

Part A

I. Name

- A. Bottle Rock Power, LLC
- B. Production of Geothermal Steam for Generation of Electricity
- C. Ronald E. Suess, President
Bottle Rock Power, LLC
P.O. Box 326
Cobb, CA 95426
707-928-4578
- D. Geothermal Lease
- E. Estimated Starting Date: 01 July 2006
Estimated Completion Date: 30 September 2006
This range of dates represents refurbishing activities for the Bottle Rock Power Plant.

II. Type of Application

- A. 1 Original Application
- B. 2 Modification: Modify Existing to Authority to Construct A/C 80-034A

III. Description of Facility

- A. Location
 - 1. Section: 5; Township: 11 North; Range: 8 West; Benchmark & Meridian: Mount Diablo Meridian (MDM); County of Lake. These coordinates describe the location of the Plant and all the equipment that supports it. (Lat-N = 38-50-35.0 N and Long-W = 122-46-39.0 W)
 - 2. Plot Plan
 - a. Power Plant Location (**See Attachment 1**)
 - b. Same (**See Attachment 1**)
 - c. Not Applicable
 - d. The adjacent property owners are primarily residents in a rural setting with a geothermal development immediately adjacent to BRPP and to the southwest of the BRPP.

- e. Abatement chemicals and support products, if any at all, will be stored onsite within the designated areas inside the bermed Plant yard and held in appropriate container specific for that product.
 - f. Emissions control and air monitoring equipment are described in A/C 80-034A
 - g. Not Applicable
 - h. There should be minimal impact, if any at all, upon ambient air quality as a result of these changes.
- B. The Bottle Rock Power Plant and Steamfield use geothermal steam to generate electricity for distribution to a service area controlled by the participating transmission owner and the California Independent System Operator. Various equipment are integrated with the Plant to support the electricity generating process. These include, but are not limited to, the cooling tower, the Stretford system, the Plant control apparatus, and the condenser system.

IV. Description of Process

- A. There are two key changes proposed for the Stretford system. The changes will enhance the overall performance and reliability of the Stretford as well as improve ambient air quality by reducing system upsets or trips. These changes are listed as follows:

Addition of Ten Inch Skimming Line on the Stretford Delay Tank

The Stretford Delay Tank is equipped with two six inch (6") skimming lines that were part of the original installation. These skimming lines are located at the normal operating liquid level of the Tank. The purpose of the skim lines is to skim off solids from the top of the Stretford solution contained in the Delay Tank. The solids and fluid captured by the skimming discharge into the top of the two oxidizer tanks as the next step in the Stretford process.

The BRPC proposes to add a ten inch (10") skimming line next to the two existing 6" lines. The 10" skimming line offers a wider opening to skim off the solids from the Stretford solution. The skimmed solids and captured fluid will flow into the lower part of the oxidizer tanks through the existing piping.

Delivery to the lower part of the tanks instead of the top of the tanks creates less unwanted turbulence and does not affect the frothing process. The Stretford process is not changed in any manner or means by this modification. The two 6" lines will remain in place and continue to function along with the new 10" line. See the attached drawing (**Attachment 2**) that shows the location of all three skim lines.

Air Sparging Headers in Oxidizer Tanks

The current design of the Stretford system introduces air into the oxidizer tanks by means of four mixing venturies on each oxidizer tank. Atmospheric air co-mingles with Stretford solution as it is discharging from the delay tank. The co-mingled air and Stretford solution then enter each tank approximately four feet above the bottom of each tank. The venturies have a tendency to plug with solids due to the small amount of elemental sulfur that precipitates and settles at this location in the Stretford process.

The BRPC proposes to add a sparging header inside each oxidizer tank that will be located approximately five feet above the bottom of each tank. Each header will more evenly deliver air within each tank and will eliminate the plugging that occurs in the venturies. The original venturi air delivery system, described above, will remain in place and remain fully operational. The venturi system redundancy can be used on an as needed basis. See the attached drawings (***Attachment 3***) that show the likely header configuration.

- B. See Attachment 1, 2 and 3.
- C. Not Applicable
- D. The operation of the skimming line and the air sparging headers will be on a continuous 24 hours basis as long as the Plant is operating.
- E. Not Applicable
- F. Not Applicable
- G. Equipment: Skimming Line and Sparging Headers
 - 1. Not Applicable; each is one of a kind.
 - 2. Not Applicable.
 - 3. Not Applicable.
 - 4. Skimming line: Sulfur and Stretford solution; Sparging headers: Air.
 - 5. Not Applicable
 - 6. Operation of skimming line and sparging headers will be continuous in concert with operation of Plant.
- H. Description of Control Equipment
 - 1. Stretford control will be performed by the digital control system.
 - 2. Not Applicable

3. Not Applicable

4. Not Applicable

5. Not Applicable

6. Not Applicable

7. Not Applicable

I. Describe Locations and Amounts of Emissions

1. Not Applicable

2. Not Applicable

3. Not Applicable

4. Not Applicable

5. Outlet temperature: Not Applicable

6. Estimate the quantity of each pollutant emitted: Not Applicable

J. Describe Emissions of a "Fugitive" Nature

1. Fugitive emission from skimming line and air sparging header should be minimal, if any at all.

K. Calculations: Not Applicable

V. Description of Fuel Burning and Fuel

A. Not Applicable

B. Not Applicable

C. Not Applicable

VI. Describe Storage Facilities

A. Not Applicable

B. Not Applicable

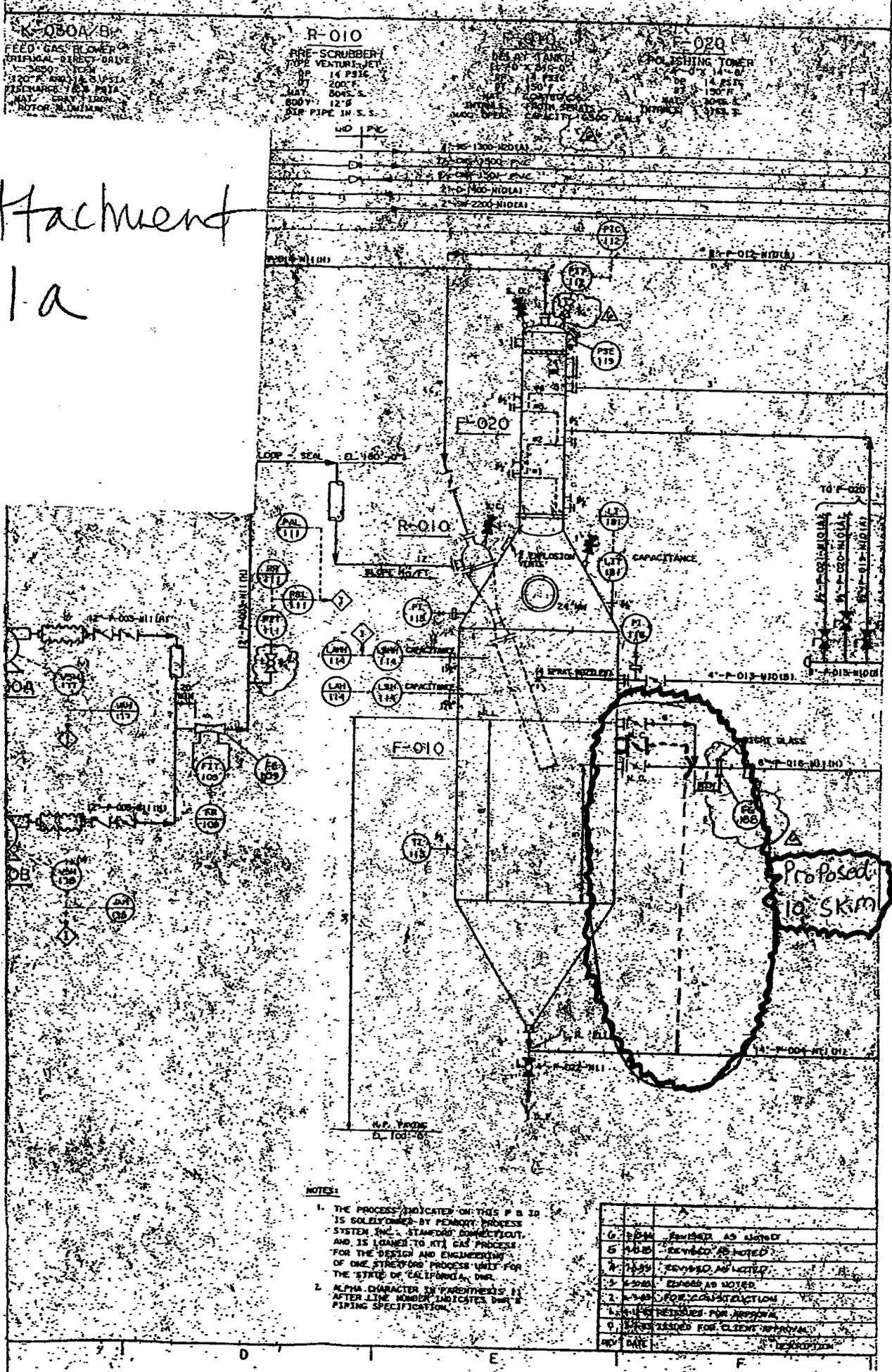
C. Not Applicable

D. Not Applicable

ATTACHMENT 1

ATTACHMENT 2

Attachment
1a



NOTES:

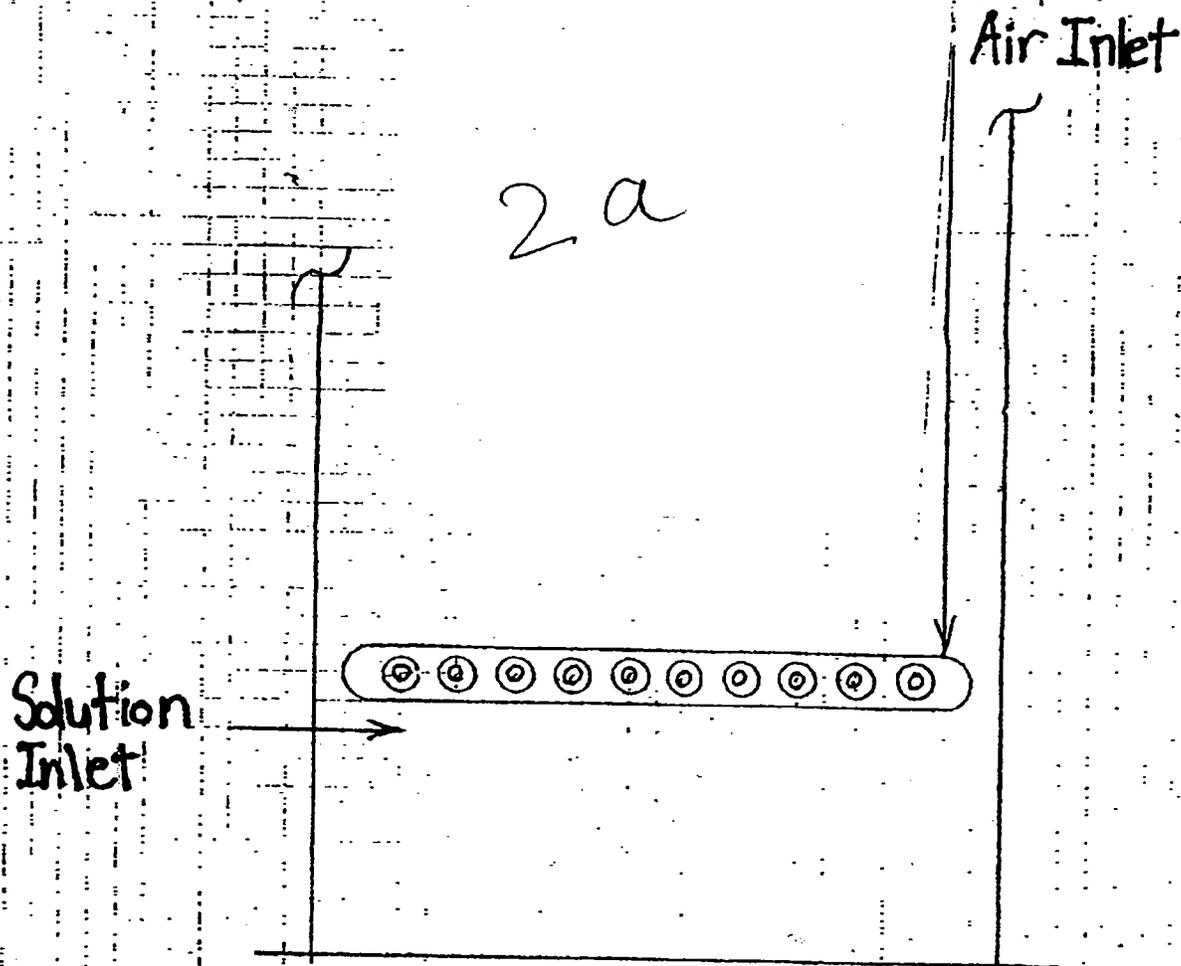
1. THE PROCESS INDICATED ON THIS P & ID IS SOLELY OWNED BY PENNAC PROCESS SYSTEM INC., STAMFORD CONNECTICUT, AND IS LOANED TO KTI GAS PROCESS FOR THE DESIGN AND ENGINEERING OF ONE STREYFORD PROCESS UNIT FOR THE STATE OF CALIFORNIA, ONE.
2. ALPHA CHARACTER IN INSTRUMENTS IS AFTER LINE NUMBER INDICATES DUAL PIPING SPECIFICATION.

NO.	DATE	DESCRIPTION
6	11-10-88	REVISED AS NOTED
5	11-10-88	REVISED AS NOTED
4	11-10-88	REVISED AS NOTED
3	11-10-88	REVISED AS NOTED
2	11-10-88	FOR CONSTRUCTION
1	11-10-88	REVISED FOR REMOVA
0	11-10-88	ISSUED FOR CLIENT APPROVAL
	NO. DATE	DESCRIPTION

ATTACHMENT 3

Bottle Rock Plant

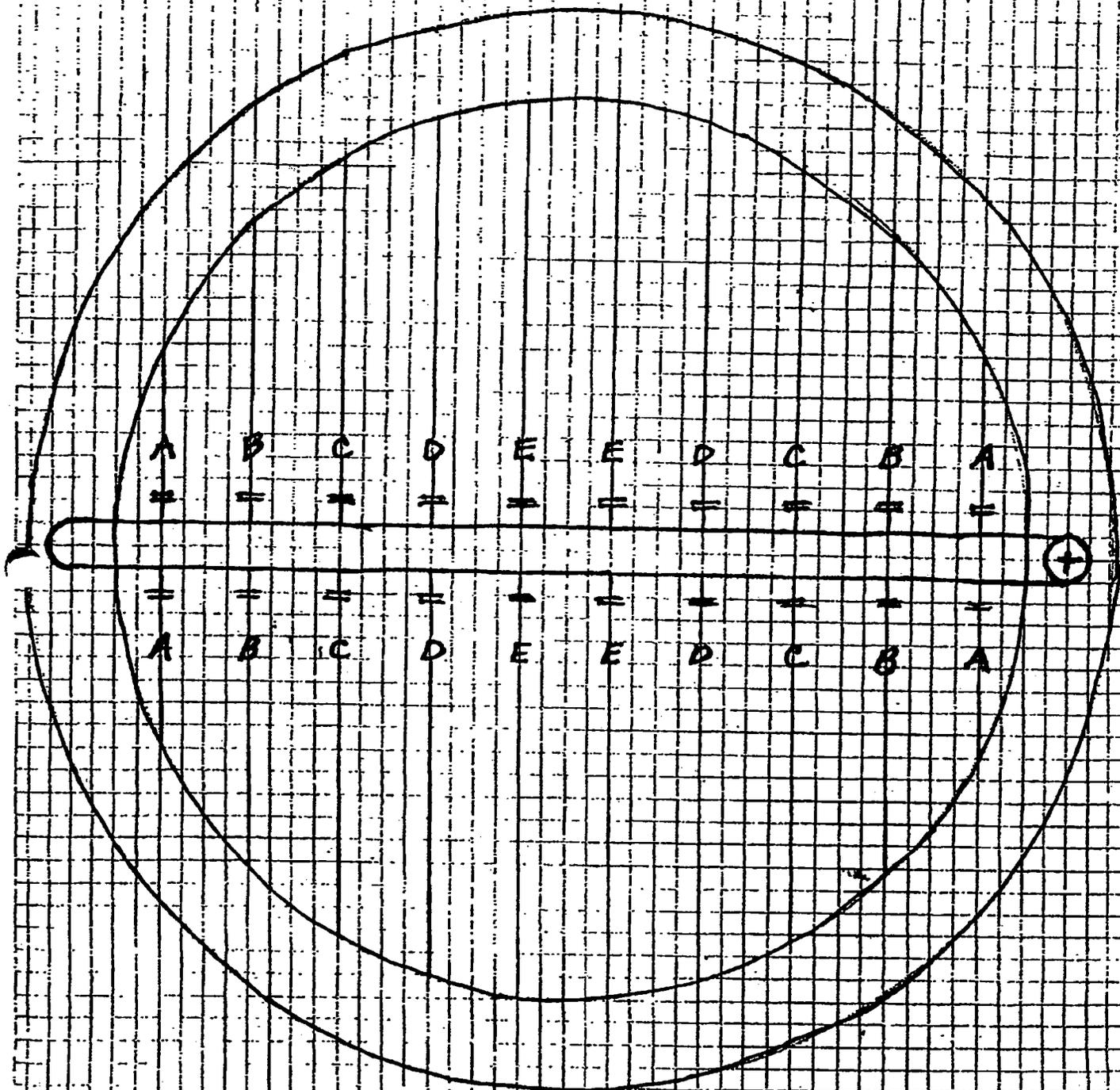
Proposed Oxidizer Aerator
Profile



Oxidizer Tank
Scale: 2div ~ 1'

Bottle Rock Plant

Proposed Oxidizer Aerator
Layout



Scale: 4 div = 1'



Lake County Air Quality
 Management District
 885 Lakeport Blvd.
 Lakeport, CA 95453
 707-263-7000 / fax 263-0421

Robert L. Reynolds
 Air Pollution Control Officer
 bobr@pacific.net

Application For An Authority To Construct (& Attached List and Criteria)

Type of Application: New Facility Modification Existing Facility, Not Previously Permitted

Contact Name: Ronald E. Suess
 Business Name: Bottle Rock Power, LLC
 Mailing Address: P.O. Box 326
Cobb, CA 95426

Facility Name: Bottle Rock Power Plant
 Facility or Project Name: Bottle Rock Power Plant

Permit #: AC 80-034A Category III

Description of the Process/Purpose of the Facility:

Electric Generation
 Estimated Construction dates:
 Start - July 2006 Completion - Sept 2006

Equipment Location/Legal Description:

The Stretford facility and Sulfur cake process are located on the East side of the power plant.

Description of equipment by make, model, size and type:

The facility currently uses a rotating vacuum drum (Bird Filter) to separate the elemental sulfur from the filtrate (water and stretford solution). This process removes 50% - 65% of the moisture from the elemental sulfur before dumping it on a conveyor for delivery to storage bins for scheduled disposal.

Diagram/Plot Plan of Facility Enclosed? Yes No

Additional List and Criteria Data Attached: Yes No (List and Criteria are attached)
 If no give reason:

Operating Schedule: 24 Hours/Day 7 Days/Week 52 Weeks/Year

Production Rates: 0.5 lbs /hour, /Day, /Year (Specify Units)

Lat-N: 38-50-35.0 N

Long-W: 122-46-39.0 W

Amount, nature, and duration of emissions: in accordance with existing permit.

Attach a Facility and Equipment Diagram, Specification Sheets, and Process Flow Diagram. Show the location and distance to adjacent residences, businesses, schools and hospitals.

Type and efficiency of air pollution control equipment:

Type and Estimated Quantity of fuel use: diesel 500 gal/yr (%S): 0.5

Ten year projected expansion plans: No expansion above the 56 Mega Watt plant rating

I have read and understand the LCAQMD's List and Criteria for Authority to Construct Permits. I understand that I am responsible for any information listed herein or requested pursuant to this application. Based on information and belief formed after reasonable inquiry, the statements and information presented in this application and supplemental documentation are true, accurate, and complete.

Ronald E. Suess
 Signature of authorized representative of firm

Date 13 July 2006

Name: Ronald E. Suess

Title: President

Telephone: 707-928-4578

FAX: 707-928-4581

Lake County Air Quality Management District List and Criteria Data

Part A

I. Name

- A. Bottle Rock Power, LLC
- B. Production of Geothermal Steam for Generation of Electricity
- C. Ronald E. Suess, President
Bottle Rock Power, LLC
P.O. Box 326
Cobb, CA 95426
707-928-4578
- D. Geothermal Lease
- E. Estimated Starting Date: 01 July 2006
Estimated Completion Date: 30 September 2006
This range of dates represents refurbishing activities for the Bottle Rock Power Plant.

II. Type of Application

- A. 1 Original Application
- B. 2 Modification: Modify Existing to Authority to Construct A/C 80-034A

III. Description of Facility

- A. Location
 - 1. Section: 5; Township: 11 North; Range: 8 West; Benchmark & Meridian: Mount Diablo Meridian (MDM); County of Lake. These coordinates describe the location of the Plant and all the equipment that supports it.
(Lat-N = 38-50-35.0 N and Long-W = 122-46-39.0 W)
 - 2. Plot Plan
 - a. Power Plant Location (**See Attachment 1**)
 - b. Same (**See Attachment 1**)
 - c. Not Applicable
 - d. The adjacent property owners are primarily residents in a rural setting with a geothermal development immediately adjacent to BRPP and to the southwest of the BRPP.

- e. Abatement chemicals and support products, if any at all, will be stored onsite within the designated areas inside the bermed Plant yard and held in appropriate container specific for that product.
 - f. Emissions control and air monitoring equipment are described in A/C 80-034A
 - g. Not Applicable
 - h. There should be minimal impact, if any at all, upon ambient air quality as a result of these changes.
- B. The Bottle Rock Power Plant and Steamfield use geothermal steam to generate electricity for distribution to a service area controlled by the participating transmission owner and the California Independent System Operator. Various equipment are integrated with the Plant to support the electricity generating process. These include, but are not limited to, the cooling tower, the Stretford system, the Plant control apparatus, and the condenser system.

IV. Description of Process

- A. The facility currently uses a rotating vacuum drum (Bird Filter) to separate the elemental sulfur from the filtrate (water and stretford solution). This process removes 50% - 65% of the moisture from the elemental sulfur before dumping it on a conveyor for delivery to storage bins for scheduled disposal.

Future Considerations:

1. The facility owns a second unused rotating drum vacuum filter. If it is determined that additional washing of the cake is required, it may be useful to reconstitute the sulfur in a tank and dehydrate it a second time using the second vacuum filter.
 2. In the future a filter press may be considered to remove additional moisture from the filter cake, reducing both volume and weight. This also provides an opportunity for additional washing of the sulfur.
- B. No drawings are available at this time. When BRPP becomes operational the evaluation of the sulfur cake process will be evaluated. Drawings will be supplied prior to any modifications being performed.
- C. Not Applicable
- D. The operation of the sulfur cake process will be on a continuous 24 hours basis as long as the Plant is operating.
- E. Not Applicable
- F. Not Applicable

G. Equipment: Sulfur Cake Process

1. Not Applicable.
2. Not Applicable.
3. Not Applicable.
4. Sulfur Cake with a mixture of Stretford solution
5. Not Applicable
6. Operation of sulfur cake process will be continuous in concert with operation of Plant.

H. Description of Control Equipment

1. Not available at this time.
2. Not Applicable
3. Not Applicable
4. Not Applicable
5. Not Applicable
6. Not Applicable
7. Not Applicable

I. Describe Locations and Amounts of Emissions

1. Not Applicable
2. Not Applicable
3. Not Applicable
4. Not Applicable
5. Outlet temperature: Not Applicable
6. Estimate the quantity of each pollutant emitted: Not Applicable

J. Describe Emissions of a "Fugitive" Nature

1. Fugitive emission from sulfur cake manufacturing should be minimal, if any at all.

K. Calculations: Not Applicable

V. Description of Fuel Burning and Fuel

A. Not Applicable

B. Not Applicable

C. Not Applicable

VI. Describe Storage Facilities

A. Not Applicable

B. Not Applicable

C. Not Applicable

D. Not Applicable

ATTACHMENT 1



Lake County Air Quality
 Management District
 885 Lakeport Blvd.
 Lakeport, CA 95453
 707-263-7000 / fax 263-0421

Robert L. Reynolds
 Air Pollution Control Officer
 bobr@pacific.net

Application For An Authority To Construct (& Attached List and Criteria)

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Contact Name: Ronald E. Suess, President
 Business Name: Bottle Rock Power, LLC
 Mailing Address: P.O. Box 326
Cobb, CA 95426

Facility Name: Bottle Rock Power Plant
 Facility or Project Name: Bottle Rock Power Plant

Permit #: A/C 80-034A Category III

Description of the Process/Purpose of the Facility:

Electric Generation

Equipment Location/Legal Description:

Stretford facility on the East side of the power plant

Estimated Construction dates:

Start: July 2006 Completion: Sept 2006

Description of equipment by make, model, size and type:

Activated carbon filters have been proven to remove mercury from the sour non-condensable gas stream. The plant is currently reviewing what type and who may manufacture the carbon filters.

Diagram/Plot Plan of Facility Enclosed? Yes No

Additional List and Criteria Data Attached: Yes No (List and Criteria are attached)

If no give reason:

Operating Schedule: 24 Hours/Day 7 Days/Week 52 Weeks/Year

Production Rates: 0.5 lbs /Hour, _____ /Day, _____ /Year (Specify Units)

Lat-N: 38-50-35.0 N

Long-W: 122-46-39.0 W

Amount, nature, and duration of emissions: in accordance with existing permit

Attach a Facility and Equipment Diagram, Specification Sheets, and Process Flow Diagram. Show the location and distance to adjacent residences, businesses, schools and hospitals.

Type and efficiency of air pollution control equipment:

Type and Estimated Quantity of fuel use: diesel 500 gal/yr (%S): 0.5

Ten year projected expansion plans: No expansion above the 55 Mega Watt plant rating

I have read and understand the LCAQMD's List and Criteria for Authority to Construct Permits. I understand that I am responsible for any information listed herein or requested pursuant to this application. Based on information and belief formed after reasonable inquiry, the statements and information presented in this application and supplemental documentation are true, accurate, and complete.

Ronald E. Suess
 Signature of authorized representative of firm

Date: 18 July 2006

Name: Ronald E. Suess

Title: President

Telephone: 707-928-4578

FAX: 707-928-4581

Lake County Air Quality Management District List and Criteria Data

Part A

I. Name

- A. Bottle Rock Power, LLC
- B. Production of Geothermal Steam for Generation of Electricity
- C. Ronald E. Suess, President
Bottle Rock Power, LLC
P.O. Box 326
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- D. Geothermal Lease
- E. Estimated Starting Date: 01 July 2006
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This range of dates represents refurbishing activities for the Bottle Rock Power Plant.

II. Type of Application

- A. 1 Original Application
- B. 2 Modification: Modify Existing to Authority to Construct 80-034A

III. Description of Facility

- A. Location
 - 1. Section: 5; Township: 11 North; Range: 8 West; Benchmark & Meridian: Mount Diablo Meridian (MDM); County of Lake. These coordinates describe the location of the Plant and all the equipment that supports it. (Lat-N = 38-50-35.0 N and Long-W = 122-46-39.0 W)
 - 2. Plot Plan
 - a. Power Plant Location (**See Attachment 1**)
 - b. Same (**See Attachment 1**)
 - c. Not Applicable
 - d. The adjacent property owners are primarily residents in a rural setting with a geothermal development immediately adjacent to BRPP and to the southwest of the BRPP.

- e. Abatement chemicals and support products, if any at all, will be stored onsite within the designated areas inside the bermed Plant yard and held in appropriate container specific for that product.
 - f. Emissions control and air monitoring equipment are described in A/C 80-034A
 - g. Not Applicable
 - h. There should be minimal impact, if any at all, upon ambient air quality as a result of this change. The removal of mercury for the non-condensable gas stream will remove potential contaminant for co-product sulfur produced by Stretford process.
- B. The Bottle Rock Power Plant and Steamfield use geothermal steam to generate electricity for distribution to a service area controlled by the participating transmission owner and the California Independent System Operator. Various equipment are integrated with the Plant to support the electricity generating process. These include, but are not limited to, the cooling tower, the Stretford system, the Plant control apparatus, and the condenser system.

IV. Description of Process

- A. The BRPC proposes to add one or two activated carbon bed filters to remove mercury from the non-condensable sour gas stream. It is anticipated that each filter will contain approximately 120 cubic feet of activated carbon. The use of two filters provides redundancy of operation so as to eliminate a Plant outage to service one carbon filter.
- B. See attachment 2.
- C. The activated carbon filters to remove mercury as static devices that will be designed on an exclusive basis; therefore, typical equipment data not available.
- D. Operation is continuous on a 24 hours basis as long as Plant is operating.
- E. Throughput of filter(s) dependent upon mass steam flow through turbine and corresponding ratio of non-condensable gases contained in the steam.
- F. Not Applicable
- G. Equipment: Activated Carbon Filter to Remove Mercury
 - 1. Not Available
 - 2. Both will be the same, greater than 100° F.

3. There should be no emission point for mercury removed by filter(s); periodic disposal of spent carbon, which contains mercury, will be disposed in appropriate manner at that time; will minimize, if not eliminate, mercury contamination of sulfur produced by Stretford.
4. Dependent upon hydrogen sulfide concentration in the non-condensable gas stream, but should not exceed five percent.
5. Not Applicable
6. Operation of mercury filter(s) will be continuous in concert with operation of Plant.

H. Description of Control Equipment

1. Carbon filters will be controlled by operator interface and the digital control system.
2. Not known at this time; will provide to LCAQMD as soon as known.
3. Same (See 'IV-G-4', above).
4. Not Applicable
5. See 'IV-G-3', above.
6. Not Applicable
7. Not Applicable

I. Describe Locations and Amounts of Emissions

1. Same as 'IV-G-3', above.
2. Not Applicable
3. Not Applicable
4. Flow rate of exhaust gases: Determined by operating parameters at a given time; designed capacity dependent upon mass flow, not concentration.
5. Outlet temperatures: Temperature will be in excess of 100° F.
6. Estimate the quantity of each pollutant emitted: Not Applicable

J. Describe Emissions of a "Fugitive" Nature

1. There should be no fugitive emissions from mercury filters.

K. Calculations: Not Applicable

V. Description of Fuel Burning and Fuel

A. Not Applicable

B. Not Applicable

C. Not Applicable

VI. Describe Storage Facilities

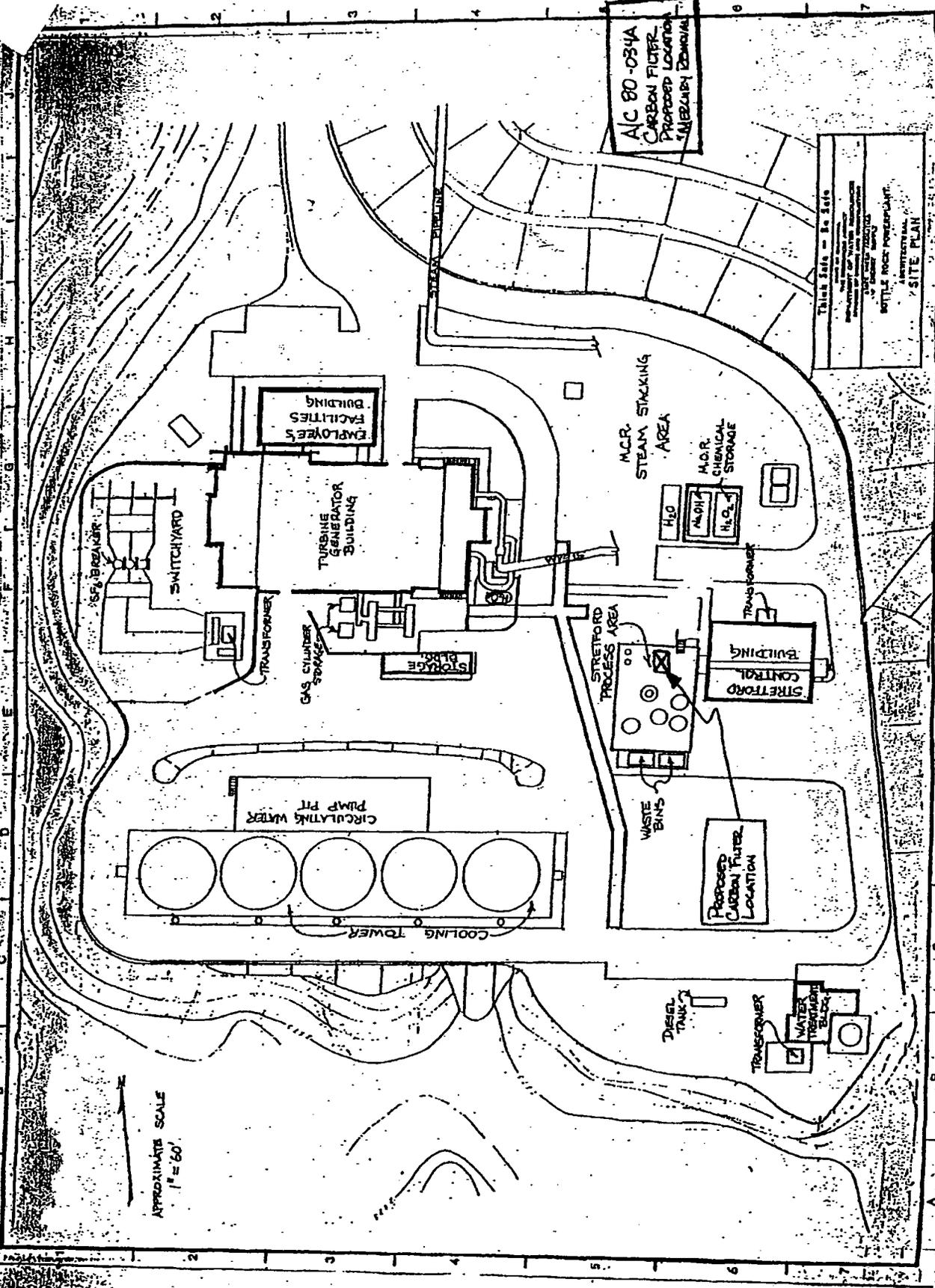
A. Not Applicable

B. Not Applicable

C. Not Applicable

D. Not Applicable

ATTACHMENT 1

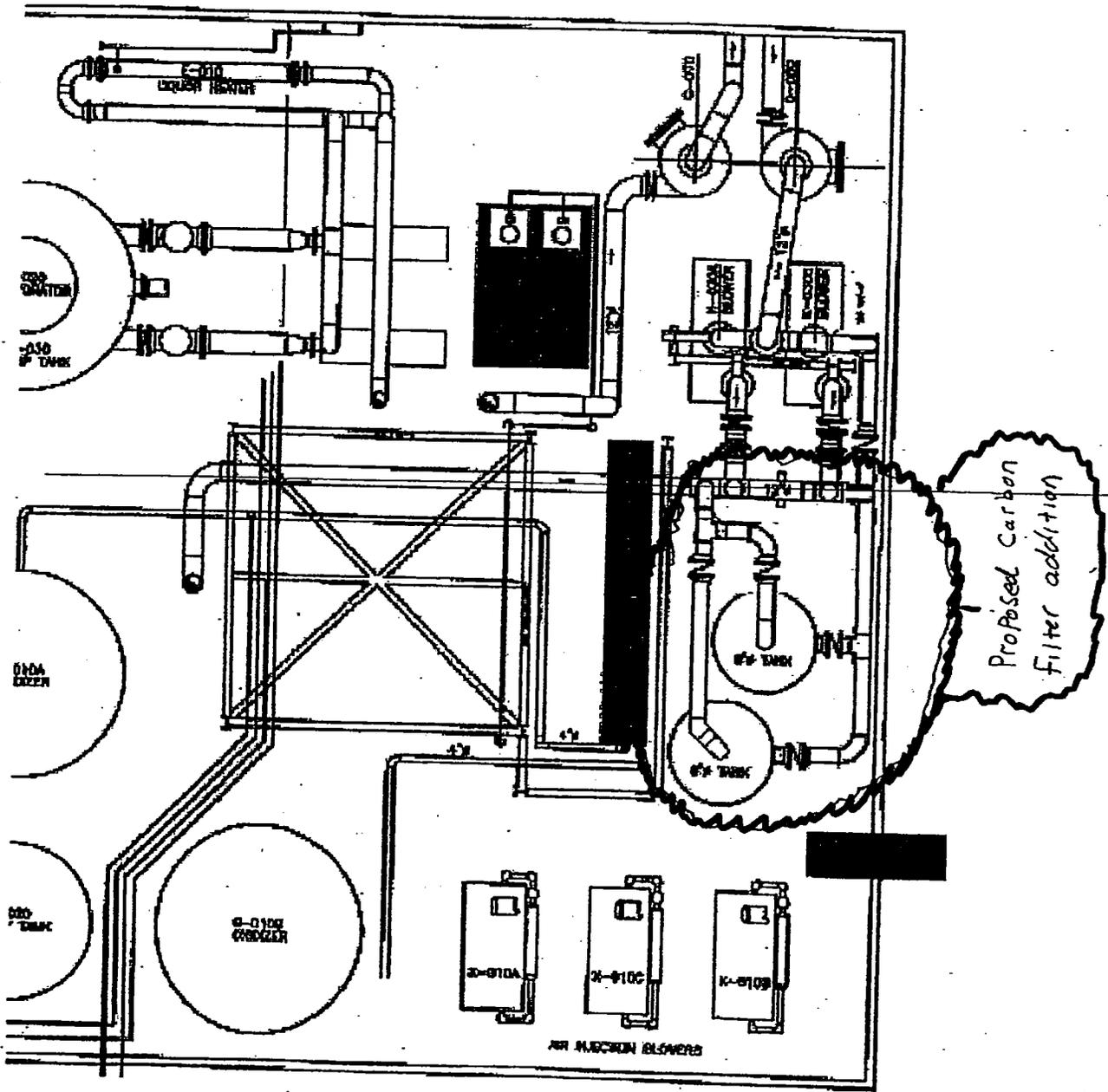


APPROXIMATE SCALE
1" = 60'

A/C 80-034A
CARBON FILTER
PROPOSED LOCATION
IN BRUSH ROOM

These data are for use
by the
Department of Public Health
and Environmental Control
of the State of New York
for the purpose of
issuing a
LICENSE TO OPERATE
INDUSTRIAL
SITE PLAN

ATTACHMENT 2





Lake County Air Quality
 Management District
 885 Lakeport Blvd.
 Lakeport, CA 95453
 707-263-7000 / Fax 263-0421

Robert L. Reynolds
 Air Pollution Control Officer
 bobr@pacific.net

Application For An Authority To Construct (& Attached List and Criteria)

Type of Application: New Facility Modification Existing Facility, Not Previously Permitted

Contact Name: Ronald E. Suess, President
 Business Name: Bottle Rock Power, LLC
 Mailing Address: P.O. Box 326
Cobb, CA 95426

Facility Name: Bottle Rock Power Plant
 Facility or Project Name: Bottle Rock Power Plant

Permit #: A/C 80-034A Category III

Description of the Process/Purpose of the Facility:
Electric Generation
 Estimated Construction dates:
 Start- July 2006 Completion- Sept. 2006

Equipment Location/Legal Description:
Stretford facility on the East side of the power plant

Description of equipment by make, model, size and type: Diagram/Plot Plan of Facility Enclosed? Yes No
The facility has traditionally used hydrogen peroxide for the mitigation of hydrogen sulfide entrained in the condensate (partitioning). Due to the success of other geothermal plants utilizing iron chelate in this application, this facility will evaluate the use of iron chelate.

Additional List and Criteria Data Attached: Yes No (List and Criteria are attached)
 If no give reason: _____

Operating Schedule: 24 Hours/Day 7 Days/Week 52 Weeks/Year
 Production Rates: 0.5 lbs. /Hour, _____ /Day, _____ /Year (Specify Units)
 Amount, nature, and duration of emissions: in accordance with existing permit
 Lat. N: 38-50-35.0 N
 Long. W: 122-46-39.0 W

Attach a Facility and Equipment Diagram, Specification Sheet(s), and Process Flow Diagram. Show the location and distance to adjacent residences, businesses, schools and hospitals.

Type and efficiency of air pollution control equipment: _____

Type and Estimated Quantity of fuel use: diesel 500 gal/yr (%S): 0.5

Ten year projected expansion plans: No expansion above the 55 Mega Watt plant rating

I have read and understand the LCAQMD's List and Criteria for Authority to Construct Permits. I understand that I am responsible for any information listed herein or requested pursuant to this application. Based on information and belief formed after reasonable inquiry, the statements and information presented in this application and supplemental documentation are true, accurate, and complete.

Ronald E. Suess
 Signature of authorized representative of firm

Date: 18 July 2006

Name: Ronald E. Suess Title: President Telephone: 707-928-4578
 FAX: 707-928-4581

Lake County Air Quality Management District List and Criteria Data

Part A

I. Name

- A. Bottle Rock Power Corporation
- B. Production of Geothermal Steam for Generation of Electricity
- C. Ronald E. Suess
President
Bottle Rock Power Corporation
P.O. Box 326
Cobb, CA 95426
707.928.4578
- D. Geothermal Lease
- E. Estimated Starting Date: 01 July 2006
Estimated Completion Date: 30 September 2006
This range of dates represents refurbishing activities for the Bottle Rock Power Plant.

II. Type of Application

- A. Original Application
- B. Modification: Modify Existing Authority to Construct 80-034A

III. Description of Facility

A. Location

- 1. Section: 5; Township: 11 North; Range: 8 West; Benchmark & Meridian: Mount Diablo Meridian (MDM); County of Lake (Lat-N: 38-50-35.0 N and Long-W: 122-46-39.0 W). These coordinates describe the location of the Plant and all the equipment that supports it.
- 2. Plot Plan
 - a. Power Plant Location (*See Attachment 1*)
 - b. Same (*See Attachment 1*)
 - c. Not Applicable
 - d. The adjacent property owners are primarily residents in a rural setting with a geothermal development immediately adjacent to BRPP and to the southwest of the BRPP.

- e. Abatement chemicals and support products, if any at all, will be stored onsite within the designated areas inside the bermed Plant yard and held in appropriate container specific for that product.
 - f. Air emissions control systems and air monitoring equipment are described in A/C 80-034A
 - g. Not Applicable
 - h. There should be minimal adverse impact, if any at all, upon ambient air quality as a result of this change.
- B. The Bottle Rock Power Plant and Steamfield use geothermal steam to generate electricity for distribution to a service area controlled by the participating transmission owner and the California Independent System Operator. Various equipment are integrated with the Plant to support the electricity generating process. These include, but are not limited to, the cooling tower, the Stretford system, the Plant control apparatus, and the condenser system.

IV. Description of Process

- A. The existing permit conditions require an air emissions control system (AECS) to comply with the permitted mass emissions rate of five pounds per hour. The primary abatement system is the Stretford system. This system is designed to remove H₂S while it is the gas phase. Yet, compliance with the mass emission rate may not be satisfied by this abatement process alone due to Plant steam behavior.

Consequently, there is also the requirement for secondary condensate treatment to remove the H₂S absorbed by the steam condensate so as, when combined with the Stretford system abatement, achieve the emission standard. This treatment approach described in the permit uses hydrogen peroxide (H₂O₂) and a catalyst to abate the dissolved H₂S and its ions.

The BRPC proposes to use a more effective variation of that treatment approach. BRPC seeks to use an aqueous solution of ferrous chelate as the prime mechanism to remove H₂S from the steam condensate before it reaches the top of the cooling tower. This ferrous chelate is technically known as ferrous sulfate hydroxyl acetic acid (Fe⁺⁺/HAA).

It has been demonstrated that this approach performs in superior fashion without the use of H₂O₂. With the H₂S and its ions dissolved in the condensate, the ferrous chelate is converted to ferric chelate (Fe⁺⁺⁺/HAA) with air in the cooling tower. When ferric chelate reaches the condenser, it reacts with the H₂S dissolved in the condensate to produce finely divided elemental sulfur. The sulfur is a non-hazardous material that is managed

by injection with the blowdown into the reservoir. Periodic cleaning of the cooling tower basin may be necessary (e.g., every two to three years).

This approach to secondary treatment of dissolved H_2S is now the industry standard in use at The Geysers. The H_2O_2 is no longer used as part of this treatment. This eliminates the presence of a hazardous material (strong oxidizer) and, thereby, makes for a safer environment. Yet, the resultant secondary abatement of H_2S is equal to or better than the H_2O_2 methodology. Hence, the approach will have no adverse impact on ambient air quality.

This ferric chelate- H_2S reaction can be further enhanced by extending the reaction time. BRPC will evaluate a design for returning steam condensate from the hotwell directly to the cooling tower basin and routing the condensate through a sparging distribution header in the presence of the aqueous ferric chelate. Such routing through a header enhances the residence time to allow the H_2S abatement reaction to go to completion before the co-mingled condensate-cooling water reaches the top of the cooling tower where it will rain down and potentially release H_2S into the air if the H_2S is not sufficiently abated beforehand.

Moreover, BRPC currently possesses multiple options for routing the condensate to provide residence time for enhanced abatement of H_2S :

1. Co-mingle the condensate with the circulating water just prior to the cooling tower risers.
 2. Co-mingle the condensate with the circulating water at the discharge of the condenser.
 3. Co-mingle the condensate with the circulating water at the inlet to the condenser.
 4. In combination with any of the above listed condensate flow paths, up to fifty percent of the hotwell condensate can be injected into the vacuum side of the main condenser by means of a spray header. This offers an additional opportunity for abatement of the dissolved H_2S .
- B. Not Applicable (*Drawings* will be available when a selection is made as to which approach will be used).
- C. Not Applicable
- D. The operation of the system will be on a continuous 24 hours basis as long as the Plant is operating.

E. Not Applicable

F. Not Applicable

G. Equipment: Not Applicable

1. Not Applicable

2. Not Applicable

3. The emission point for the secondary treatment system is the cooling tower fan shroud.

4. Steam condensate

5. Not Applicable

6. Operation of secondary treatment system will be continuous in concert with operation of Plant.

H. Description of Control Equipment

1. *Drawings* not available at this time.

2. Not Applicable

3. Not Applicable

4. Not Applicable

5. Not Applicable

6. Not Applicable

7. Not Applicable

I. Describe Locations and Amounts of Emissions

1. Same as 'IV-G-3', above.

2. Not Applicable

3. Not Applicable

4. Flow rate of exhaust gases: Not Available

5. Outlet temperature: Temperature will range from 80° F to 120° F.

6. Estimate the quantity of each pollutant emitted: Not Applicable

J. Describe Emissions of a "Fugitive" Nature

1. Fugitive emission should not occur as part of routine Plant operation.

K. Calculations: Not Applicable

V. Description of Fuel Burning and Fuel

A. Not Applicable

B. Not Applicable

C. Not Applicable

VI. Describe Storage Facilities

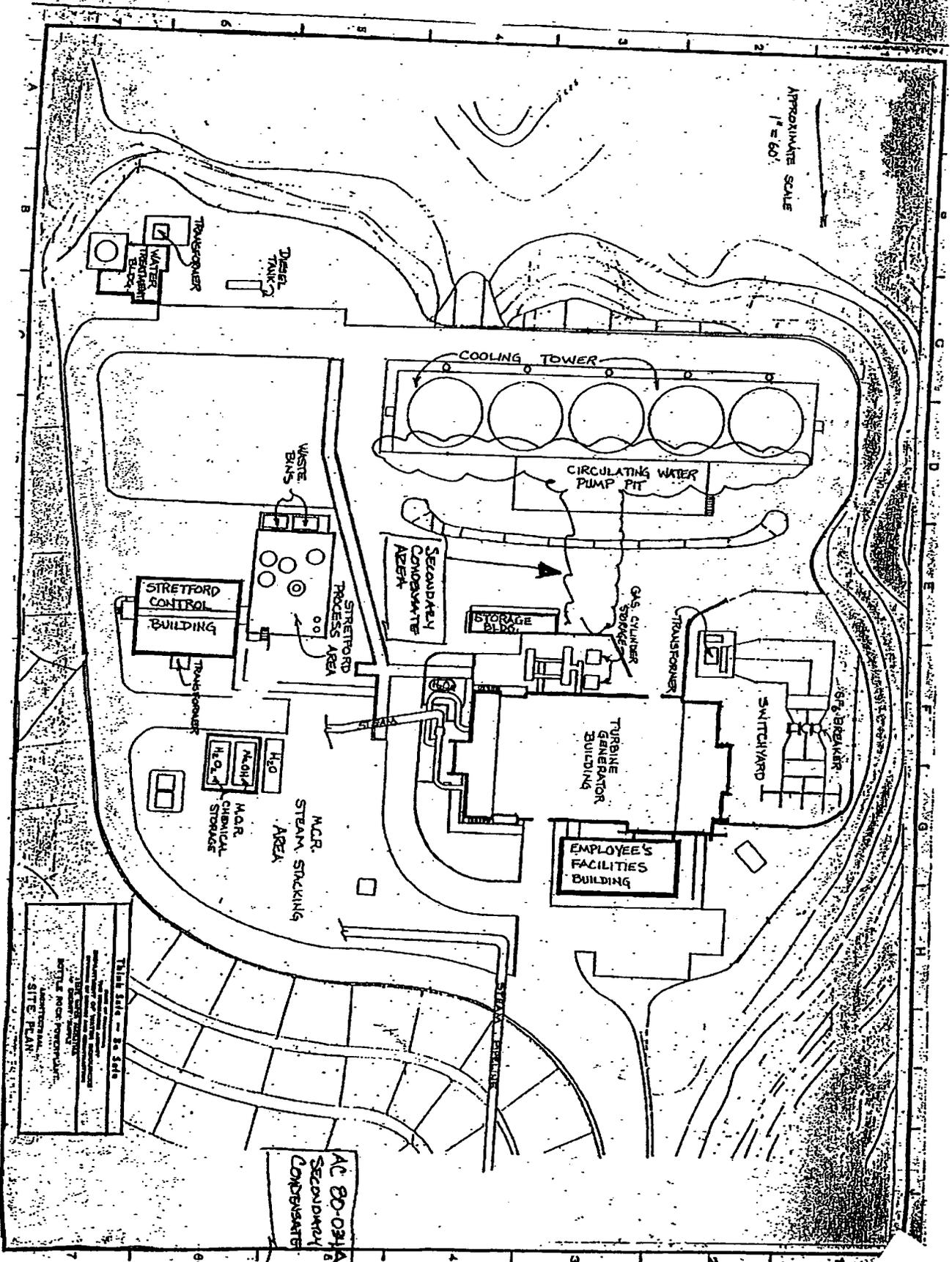
A. Not Applicable

B. Not Applicable

C. Not Applicable

D. Not Applicable

ATTACHMENT 1



APPROXIMATE SCALE
1" = 60'

Third Side - 80.540
 This side of the plan shows the location of the plant buildings and the location of the power lines. The location of the power lines is shown by the dashed lines. The location of the plant buildings is shown by the solid lines. The location of the power lines is shown by the dashed lines. The location of the plant buildings is shown by the solid lines.

**AC BO-031A
 Secondary
 CONDENSATE**



Lake County Air Quality
Management District
885 Lakeport Blvd.
Lakeport, CA 95453
707-263-7000 / fax 263-0421

Robert L. Reynolds
Air Pollution Control Officer
bobr@pacific.net

Application For An Authority To Construct (& Attached List and Criteria)

Type of Application: New Facility Modification Existing Facility, Not Previously Permitted

Contact Name: Ronald E. Suess, President
Business Name: Bottle Rock Power, LLC
Mailing Address: P.O. Box 326
Cobb, CA 95426

Facility Name: Bottle Rock Power Plant
Facility or Project Name: Bottle Rock Power Plant

Permit #: A/C 80-034A Category VI

Description of the Process/Purpose of the Facility:

Electric Generation
Estimated Construction dates:
Start - July 2006 Completion - Sept. 2006

Equipment Location/Legal Description:
Majority of the equipment will be located in the control room on the third floor of the power plant building.

Description of equipment by make, model, size and type:

The supervisory control system originally installed is non-operational. The control system architecture will be based on an Allen-Bradley ControlLogix family of automation processors.

Diagram/Plot Plan of Facility Enclosed? Yes No

Additional List and Criteria Data Attached: Yes No (List and Criteria are attached)

If no, give reason:

Operating Schedule: 24 Hours/Day 7 Days/Week 52 Weeks/Year

Production Rates: <5lbs /hour, _____ /Day, _____ /Year (Specify Units)

Lat: N: 38-50-35.0 N

Long: W: 122-46-39.0 W

Amount, nature, and duration of emissions:

Attach a Facility and Equipment Diagram, Specification Sheet(s), and Process Flow Diagram. Show the location and distance to adjacent residences, businesses, schools and hospitals:

Type and efficiency of air pollution control equipment: in accordance with existing ATC

Type and Estimated Quantity of fuel use: diesel 500 gal/yr (%S): 0.5

Ten year projected expansion plans: No expansion above the 55 Mega Watt plant rating

I have read and understand the LCAQMD's List and Criteria for Authority to Construct Permits. I understand that I am responsible for any information listed herein or requested pursuant to this application. Based on information and belief formed after reasonable inquiry, the statements and information presented in this application and supplemental documentation are true, accurate, and complete.

Ronald E. Suess
Signature of authorized representative of firm

Date: 18 July 2006

Name: Ronald E. Suess

Title: President

Telephone: 707-928-4578

FAX: 707-928-4581

Lake County Air Quality Management District List and Criteria Data

Part A

I. Name

- A. Bottle Rock Power, LLC
- B. Production of Geothermal Steam for Generation of Electricity
- C. Ronald E. Suess, President
Bottle Rock Power, LLC
P.O. Box 326
Cobb, CA 95426
707-928-4578
- D. Geothermal Lease
- E. Estimated Starting Date: 01 July 2006
Estimated Completion Date: 30 September 2006
This range of dates represents refurbishing activities for the Bottle Rock Power Plant.

II. Type of Application

- A. 1 Original Application
- B. 2 Modification: Modify Existing to Authority to Construct AC 80-034A

III. Description of Facility

- A. Location
 - 1. Section: 5; Township: 11 North; Range: 8 West; Benchmark & Meridian: Mount Diablo Meridian (MDM); County of Lake. These coordinates describe the location of the Plant and all the equipment that supports it. (Lat-N = 38-50-35.0 N and Long-W = 122-46-39.0 W)
 - 2. Plot Plan
 - a. Power Plant Location (**See Attachment 1**)
 - b. Same (**See Attachment 1**)
 - c. Not Applicable
 - d. The adjacent property owners are primarily residents in a rural setting with a geothermal development immediately adjacent to BRPP and to the southwest of the BRPP.

- e. Abatement chemicals and support products, if any at all, will be stored onsite within the designated areas inside the bermed Plant yard and held in appropriate container specific for that product.
 - f. Emissions control and air monitoring equipment are described in A/C 80-034A
 - g. Not Applicable
 - h. There should be minimal impact, if any at all, upon ambient air quality as a result of this change.
- B. The Bottle Rock Power Plant and Steamfield use geothermal steam to generate electricity for distribution to a service area controlled by the participating transmission owner and the California Independent System Operator. Various equipment are integrated with the Plant to support the electricity generating process. These include, but are not limited to, the cooling tower, the Stretford system, the Plant control apparatus, and the condenser system.

IV. Description of Process

- A. The supervisory control system originally installed at the Bottle Rock Power Plant is in a non-operational state due to broken, obsolete, and missing equipment. The technologies utilized in the system are no longer standard and are severely handicapped by a lack of suitable repair parts and maintenance equipment necessary for startup and long term operation. Other concerns include a lack of integration between the generation block, sour gas treatment, and steam field control sub-systems as well as the high operational manpower requirements. In general, there is a lack of redundancy in any of the sub-systems. The new digital control system (DCS) will use all of the existing measurement and control points, but now the DCS will allow these points to be viewed and controlled from either the main generation block control room or from the Stretford control room.

Due to the aforementioned issues, a replacement control system has been designed to provide superior total project performance through tight system integration and enhanced control system algorithms. This includes reduced operational and maintenance manpower loading by the utilization of advanced system and human machine interface (HMI) programming packages as well as advanced data collection, monitoring, and manipulation capabilities, continued long term hardware and software support, reduced spare parts inventory, and high overall reliability. Allen Bradley, the market share leader in programmed logic control (PLC) based automation systems, will provide the system hardware and programming software for the DCS. An Allen Bradley approved system integrator, Wood Group, will construct, program, and commission the system.

The Bottle Rock control system architecture will be based upon Allen Bradley's ControlLogix family of automation processors. These processors represent the most advanced automation controllers available. They also offer a high performance control platform for multi-discipline control as well as the widest range of communication, analog, and digital input/output modules available in the industry.

The proposed system implementation for the Bottle Rock Power Plant is outlined in **attachment 2**. Redundant ControlLogix processors and power supplies on the turbine-generator set, balance of plant, and H₂S abatement control subsystems provide bumpless switchover to the backup process assembly in the highly unlikely event of a processor or power supply failure. Communication between the processors and their associated input/output modules is accomplished using Allen Bradley ControlNet protocol that allow high speed, bi-directional transfer of time critical data. The ControlNet protocol also supports media redundancy to ensure continued system operation in the event of failure of one of the redundant data highways.

Communications between the operator interface consoles, input/output servers (I/O), and the processor controller systems will utilize Industrial Ethernet protocol. Industrial Ethernet provides ease of networking, seamless integration with standard information technology systems, as well as a nearly endless selection of hardware and software options. Redundant I/O servers located in the main generation block and Stretford control rooms will allow operating personnel to perform all plant operations from either location as well as allow continued Plant operation in the event of a single I/O server failure. Citech HMI software will enable all Plant and wellfield process variables to be monitored, logged, and adjusted as required from any of the operator interface console (OIC) or server workstations.

Communications between the remote wellfield control systems and the main Plant control will be accomplished via encrypted wireless Ethernet. Non-redundant CompactLogix processors will be utilized as hot standby is not required, however a full complement of spares will be located on site to enable expedient system repairs if required.

Required electrical protection relays will utilize modern microprocessor-based equipment designed to provide adequate system protection as well as meet CAISO and PG&E system protection requirements. Redundant relays will be installed as required to ensure high system availability.

- B. Not Applicable
- C. See 'IV-A', above.

D. Operation is continuous on a 24 hours basis as long as Plant is operating.

E. Not Applicable

F. See 'E', above.

G. Equipment: Digital Control System

1. Limited Applicability; not known at this time for any of the control system components; will provide, where practicable, as soon as received.

2. Not Applicable

3. Not Applicable

4. Not Applicable

5. Not Applicable

6. Operation of digital control system will be continuous in concert with operation of Plant.

H. Description of Control Equipment: See 'IV-A', above.

1. See *Figure 1*.

2. See 'IV-G-6', above.

3. Not Applicable

4. Not Applicable

5. Not Applicable

6. Not Applicable

7. No practical way to measure energy consumption of DCS.

I. Describe Locations and Amounts of Emissions

1. Not Applicable

2. Not Applicable

3. Not Applicable

4. Not Applicable

5. Not Applicable

6. Not Applicable

J. Describe Emissions of a "Fugitive" Nature: Not Applicable

K. Calculations: Not Applicable

V. Description of Fuel Burning and Fuel

A. Not Applicable

B. Not Applicable

C. Not Applicable

VI. Describe Storage Facilities

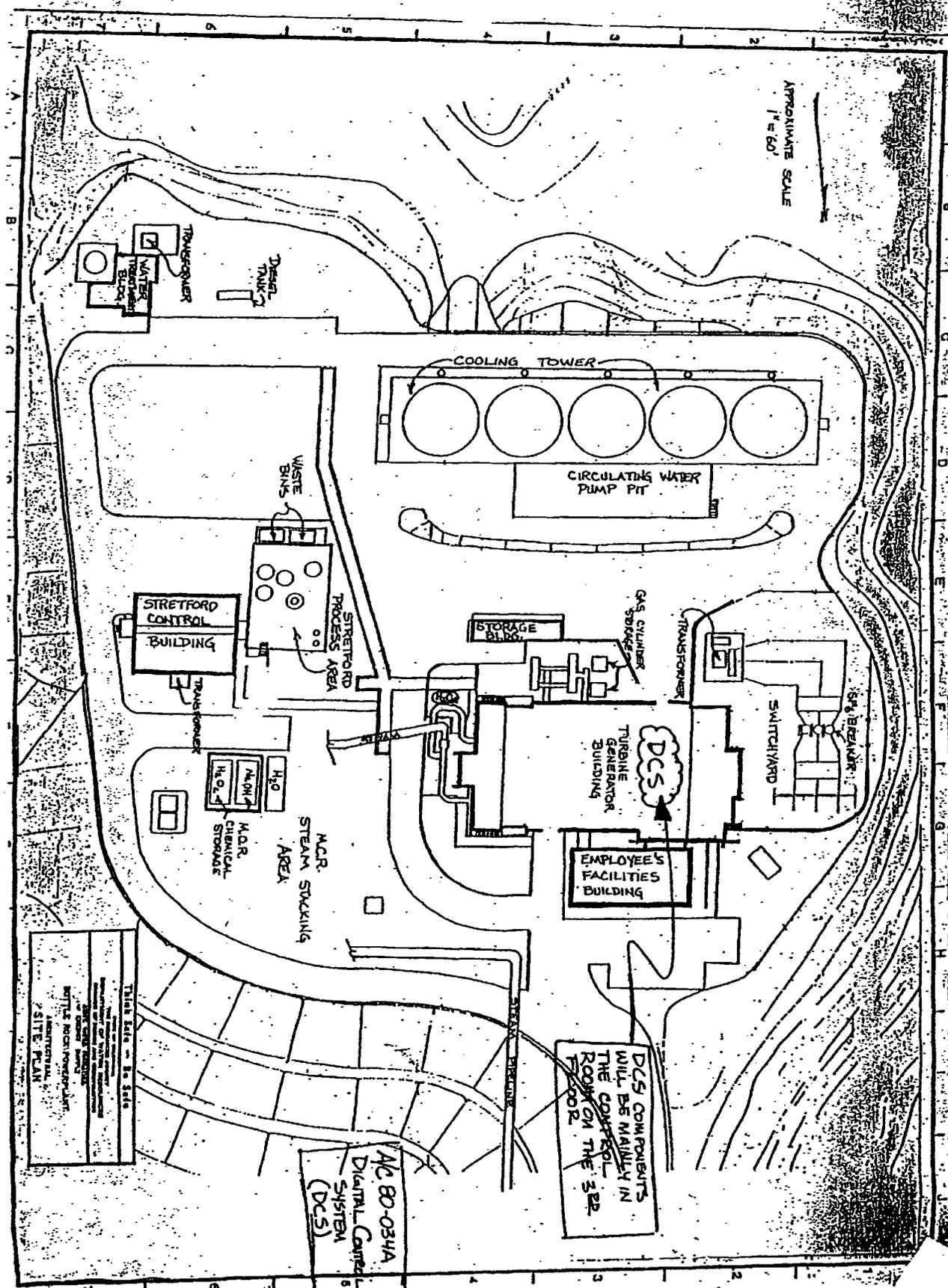
A. Not Applicable

B. Not Applicable

C. Not Applicable

D. Not Applicable

ATTACHMENT 1



APPROXIMATE SCALE
1" = 60'

DESIGN TANK
WATER TREATMENT BLDG
TRANSFORMER

COOLING TOWER
CIRCULATING WATER PUMP PIT

WASTE BINS
STRET FORD PROCESS AREA
STRET FORD CONTROL BUILDING
TRANSFORMER

STORAGE BLDG

GAS CYLINDER STORAGE

DCS
TURBINE GENERATOR BUILDING
SWITCHYARD
TRANSFORMER

M.C.R. STEAM STACKING AREA
M.O.R. CHEMICAL STORAGE
H₂O
N₂
H₂O₂

EMPLOYEE'S FACILITIES BUILDING

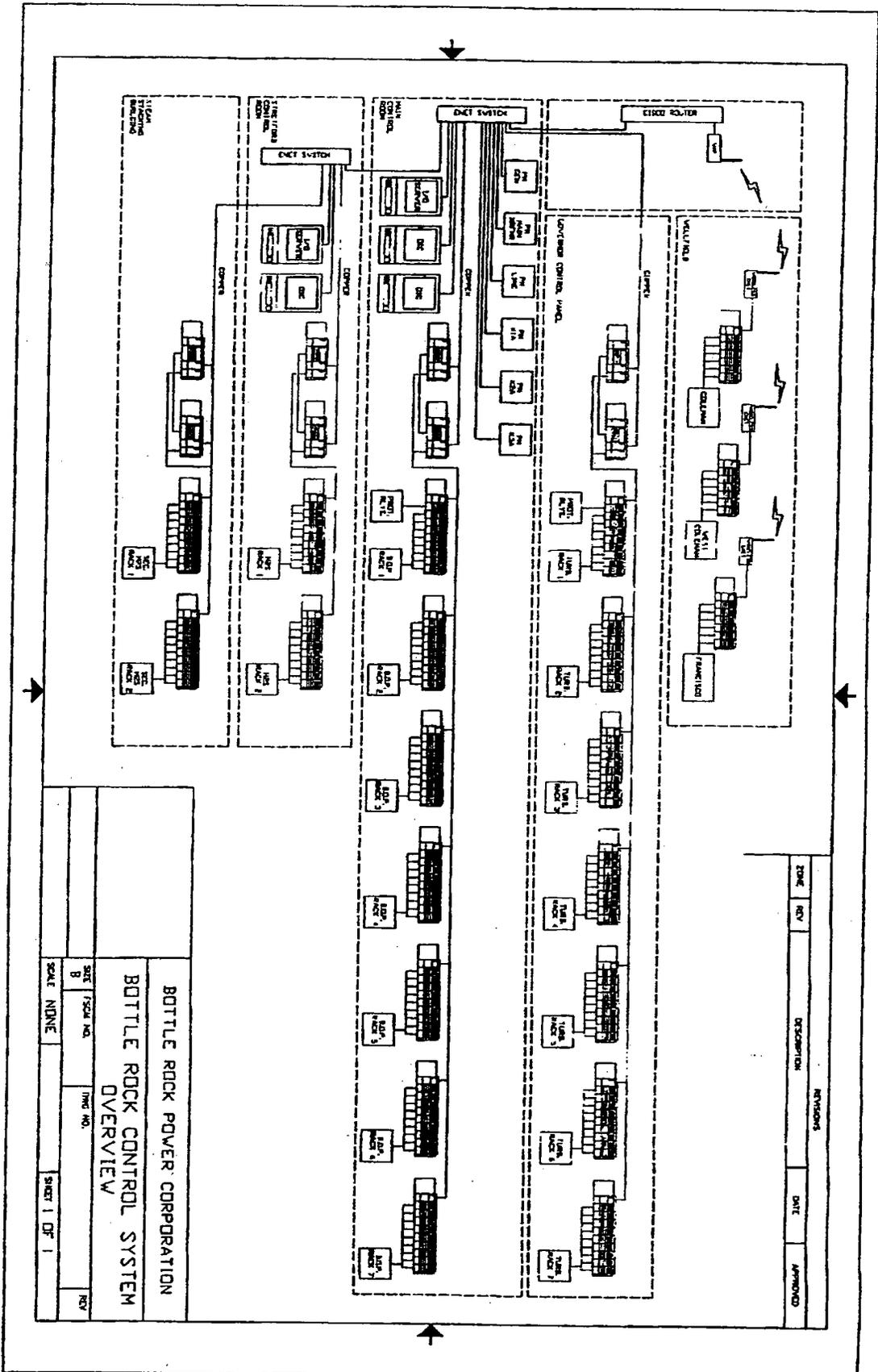
THIS DRAWING IS THE PROPERTY OF THE UNITED STATES GOVERNMENT AND IS LOANED TO YOU. IT AND ITS CONTENTS ARE NOT TO BE DISTRIBUTED OUTSIDE YOUR AGENCY.

AC 80-034A
DIGITAL CONTROL SYSTEM (DCS)
SITE PLAN

DCS COMPONENTS WILL BE MAINLY IN THE CONTROL ROOM ON THE 3RD FLOOR

AC 80-034A
DIGITAL CONTROL SYSTEM (DCS)

ATTACHMENT 2



REVISIONS			
DATE	REV	DESCRIPTION	APPROVED

BOTTLE ROCK POWER CORPORATION		SHEET 1 OF 1	
BOTTLE ROCK CONTROL SYSTEM OVERVIEW		SCALE	REV
		NONE	
SHEET	SCALE	NO.	NO.
B	NONE		

Figure 1. Control System Overview



Lake County Air Quality
 Management District
 885 Lakeport Blvd.
 Lakeport, CA 95453
 707-263-7000 / fax 263-0421

Robert L. Reynolds
 Air Pollution Control Officer
 bobr@pacific.net

Application For An Authority To Construct (& Attached List and Criteria)

Type of Application: New Facility Modification Existing Facility, Not Previously Permitted

Contact Name: Ronald E. Suess, President
 Business Name: Bottle Rock Power, LLC
 Mailing Address: P.O. Box 326
Cobb, CA 95426

Facility Name: Bottle Rock Power Plant
 Facility or Project Name: Bottle Rock Power Plant

Permit #: AC 80-018A Category VI

Description of the Process/Purpose of the Facility:

Wellfield valves and Steam Stacking

Equipment Location/Legal Description:

Valves will be located at three (3) locations on the transmission line and the stacking system changes are on the East side of the plant.

Estimated Construction dates:

Start: July 2006 Completion: Sept. 2006

Description of equipment by make, model, size and type:

The valves are 150 pound gate valves. The plant is currently reviewing various manufacturers of variable frequency drives (VFD).

Diagram/Plot Plan of Facility Enclosed? Yes No

Additional List and Criteria Data Attached: Yes No (List and Criteria are attached)

If no give reason:

Operating Schedule: 24 Hours/Day 7 Days/Week 52 Weeks/Year

Production Rates: 0.5 lbs /Hour, _____ /Day, _____ /Year (Specify Units)

Lat N: 38-50-35.0 N

Long W: 122-46-39.0 W

Amount, nature, and duration of emissions: in accordance with existing permit

Attach a Facility and Equipment Diagram, Specification Sheet(s), and Process Flow Diagram. Show the location and distance to adjacent residences, businesses, schools and hospitals.

Type and efficiency of air pollution control equipment:

Type and Estimated Quantity of fuel use: diesel 500 gal/yr (%S): 0.5

Ten year projected expansion plans: No expansion above the 55 Mega Watt plant rating

I have read and understand the LCAQMD's List and Criteria for Authority to Construct Permits. I understand that I am responsible for any information listed herein or requested pursuant to this application. Based on information and belief formed after reasonable inquiry, the statements and information presented in this application and supplemental documentation are true, accurate, and complete.

Ronald E. Suess

Date: 18 July 2006

Signature of authorized representative of firm

Name: Ronald E. Suess

Title: President

Telephone: 707-928-4578

FAX: 707-928-4581

Lake County Air Quality Management District List and Criteria Data

Part A

I. Name

- A. Bottle Rock Power, LLC
- B. Production of Geothermal Steam for Generation of Electricity
- C. Ronald E. Suess, President
Bottle Rock Power, LLC
P.O. Box 326
Cobb, CA 95426
707-928-4578
- D. Geothermal Lease
- E. Estimated Starting Date: 01 July 2006
Estimated Completion Date: 30 September 2006
This range of dates represents refurbishing activities for the Bottle Rock Power Plant and steam transmission line.

II. Type of Application

- A. 1 Original Application
- B. 2 Modification: Modify Existing to Authority to Construct 80-018A

III. Description of Facility

- A. Location
 - 1. Sections: 5 and 6; Township: 11 North; Range: 8 West; Benchmark & Meridian: Mount Diablo Meridian (MDM); County of Lake. These coordinates describe the location of the steam transmission line and all the elements that supports it.
(Lat-N = 38-50-35.0 N and Long-W = 122-46-39.0 W)
 - 2. Plot Plan
 - a. Power Plant Location (**See Attachment 1**)
 - b. Same (**See Attachment 1**)
 - c. Not Applicable
 - d. The adjacent property owners are primarily residents in a rural setting with a geothermal development immediately adjacent to BRPP and to the southwest of the BRPP.

- e. Abatement chemicals and support products, if any at all, will be stored onsite within the designated areas inside the bermed Plant yard or at the Field Office yard and held in appropriate container specific for that product.
 - f. Emissions control and air monitoring equipment are described in A/C 80-034A
 - g. Not Applicable
 - h. There should be minimal impact, if any at all, upon ambient air quality as a result of these changes, since there are no primary emission points, save for the steam stacking system.
- B. The Bottle Rock Power Plant and Steamfield use geothermal steam to generate electricity for distribution to a service area controlled by the participating transmission owner and the California Independent System Operator. Various equipment are integrated with the Plant to support the electricity generating process. These include, but are not limited to, the steam transmission line, its sub-systems, and the basic Plant systems (i.e., the cooling tower, the Stretford system, the control apparatus, and the condenser system).

IV. Description of Process

A. Steam Transmission Line

BRPC proposes to install three (3) additional 150 pound gate valves in the steam transmission line. Installing these valves will provide the ability to isolate a specific well pad site as well as to isolate and/or regulate steam flow from the well pads to the Power Plant. The proposed valve installations are described as follows:

- 1) Install a 24 inch, 150 pound, DHV gate valve at the Francisco well pad. The valve will be installed in the steam gathering line (header) leaving the Francisco well pad. This valve will be used as the primary shut off point of steam from the well pad and, thereby, isolate the Francisco wells from the Plant.
- 2) Install a 30 inch, 150 pound, DHV gate valve at the West Coleman well pad. The location of this valve will be located at a point in the main steam line that will be determined by engineering evaluation. This valve will be used as the primary shut off point of steam from the well pad and, thereby, isolate the West Coleman wells from the Plant.
- 3) Install a 36 inch, 150 pound, DHV gate valve on the steam transmission line located within the Power Plant site. The valve will be installed on the Stretford side of the access road before the steam line enters the Power Plant. This valve may be used to isolate the Plant

from the steam field and/or to throttle the steam flow into the turbine so as to provide operational stability to the Plant.

Note: Valve location is shown on **attachment 2** and valve specifications are shown on **attachment 3**.

Steam Washing (De-Superheat) System

As an integral part of routine Plant operations, the Plant uses a steam wash system to remove any debris entrained in the incoming steam prior to the steam reaching the turbine. This washing process is also referenced as de-superheating the steam in the Plant permit. These names identify the exact same process used for different purposes.

The BRPC proposes to replace the existing steam washing system since it is highly likely that the original system is the root cause of the damage imposed upon the turbine rotor. The replacement system will consist of a series of penetrations into the steam transmission line upstream of the Burgess-Manning separator. The series of two-inch penetrations will be as far from the separator as practicable to allow the washing sufficient time to be effective. There will be two rows of penetrations 120 degrees apart followed by a second row twelve feet downstream. These penetrations will also be 120 degrees apart but rotated 60 degrees from the first row. This means there will be three penetrations for each row. Each penetration will be fitted with ball valve with packing gland through which the nozzle assembly will pass.

Steam wash make-up water will be supplied from the main condenser hotwell directly to the nozzles by means of a pump of suitable design so as to prevent any oxygenation of the steam condensate that contains absorbed H₂S. It will be imperative to keep the make-up water absolutely free of oxygen to prevent corrosion of the turbine rotor.

Nozzles will be designed to create an optimum water droplet size and distribution pattern. Each nozzle will be inserted into each penetration through a packing gland so as to prevent any leakage of steam and non-condensable gases. It will be critical for the nozzles to produce the correct droplet size so as to prevent erosion of the turbine rotor yet remain effective for washing.

A two-inch penetration will also be made in the transmission line downstream of the Burgess-Manning separator. This penetration will function as a sampling port by which steam quality can be monitored to assure the washing system will not damage the turbine rotor. A ball valve equipped with a packing gland will be installed to control this penetration.

The improved washing system will be in full compliance with any applicable LCAQMD permit conditions. The system will also not produce any adverse impact upon ambient air quality.

Emergency Steam Stacking VFD Modification

Given that permit conditions require the use of the emergency steam stacking muffler system in the event of a major Plant outage, the BRPC proposes minor changes to the existing steam stacking system to improve performance. Each of the proposed changes is described as follows:

- 1) Remove the two water dilution pumps that dilute the sodium hydroxide (caustic) just prior to injection into the stacking system. In the alternative, the Plant will store twenty-five percent (25%) caustic. This concentration of caustic does not require dilution, will not be prone to freezing, and will reduce the risk of exposure to Plant personnel. See the area marked "A" on the attached *Drawing* for visual description.
- 2) Add variable frequency drives (VFD) to the water quenching pumps. These pumps will increase the effectiveness of stacking by increasing the control of flow based upon the variations in the mass steam flow. See attachment 1 for pump location and attachment 4 for VFD specification.
- 3) Add variable frequency drives (VFD) to the caustic pumps. These pumps will increase the effectiveness of stacking by increasing the control of flow based upon the variations in the mass steam flow. See attachment 1 for pump location and attachment 4 for VFD specification.
- 4) Add variable frequency drives (VFD) to the hydrogen peroxide pumps. These pumps will increase the effectiveness of stacking by increasing the control of flow based upon the variations in the mass steam flow.

See attachment 1 and attachment 5 for pump location and attachment 4 for VFD specification

This modification of the emergency steam stacking system will not adversely impact ambient air quality if the stacking system is ever used.

Emergency Steam Stacking AECS Modification

BRPC reserves the opportunity to refurbish the alternate emissions control system (emergency steam stacking) whereby both legs of the chemical feed system will be refurbished for operation. This is a tenable option since the mass steam flow scheduled for re-firing the Plant will be greatly reduced from original design. BRPC only expects that approximately fifty percent (50%) of the rated steam flow capacity of the Plant's nameplate rating will be achieved during the plant restart. Accordingly, only 50% of the AECS stacking capacity will be required and, thereby, it needs only

50% of its abatement capacity. If this option is exercised, it would not have any adverse impact upon ambient air quality. It will provide a "back-up" leg in case of any unforeseen events.

- B. See the appropriate Drawings as identified in the respective description above. Other Drawings are available upon request.
- C. The Drawings for the steam line valves and AECS depict their respective data as well as that of the respective VFD; Not Applicable to the steam washing system.
- D. The operation of all of the identified systems will be on a continuous 24 hours basis as long as the Plant is operating. The two well pad isolation valves will be used on an as needed basis.
- E. Not Applicable
- F. Not Applicable
- G. Equipment: Not Applicable
 - 1. Not Applicable
 - 2. Steam temperature governs all systems at approximately 350° F.
 - 3. This applies primarily to the steam stacking where the emission point is the exhaust hood of the stacks themselves.
 - 4. Steam
 - 5. Not Applicable
 - 6. See 'IV-D', above.
- H. Description of Control Equipment
 - 1. The steam field valves and the VFD will be controlled by the digital control system. See Drawings as listed in descriptions; other Drawings available upon request.
 - 2. Not Applicable
 - 3. Not Applicable
 - 4. Not Applicable
 - 5. See 'IV-G-3', above.

6. Not Applicable

7. Not Applicable

I. Describe Locations and Amounts of Emissions

1. Same as 'IV-G-3', above.

2. Not Applicable

3. Not Applicable

4. Flow rate of exhaust gases: Applies only to steam stacking; stack exhaust equal mass steam flow rate.

5. Outlet temperature: Temperature will be that of steam, approximately 350° F.

6. Estimate the quantity of each pollutant emitted: Less than five (5) pounds per hour of H₂S as per permit condition.

J. Describe Emissions of a "Fugitive" Nature

1. Fugitive emission from all of the above systems should be minimal, if any at all, save the steam stacking system which is intended to emit H₂S in a controlled manner.

K. Calculations: Not Applicable

V. Description of Fuel Burning and Fuel

A. Not Applicable

B. Not Applicable

C. Not Applicable

VI. Describe Storage Facilities

A. Not Applicable

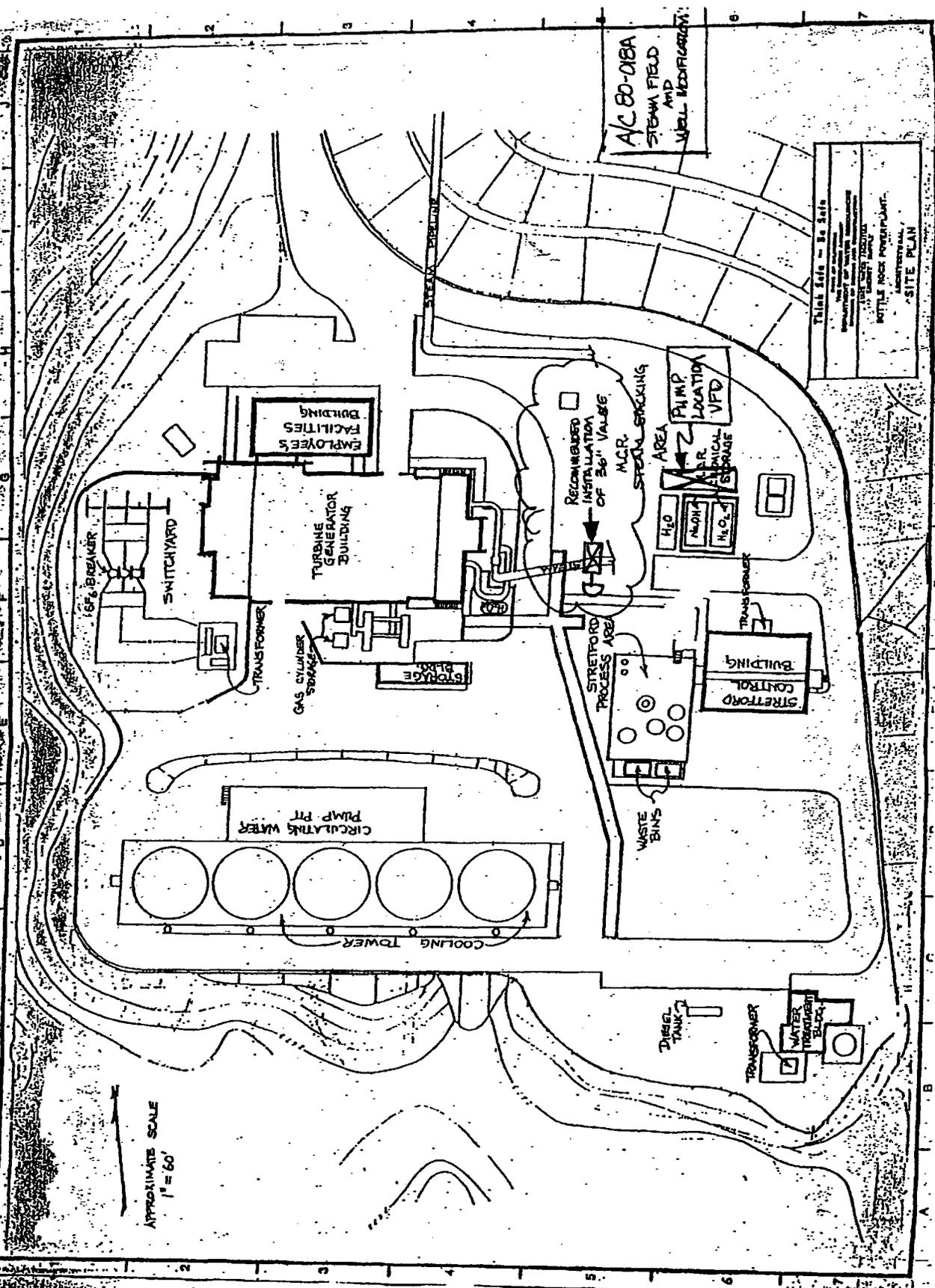
B. Not Applicable

C. Not Applicable

D. Not Applicable

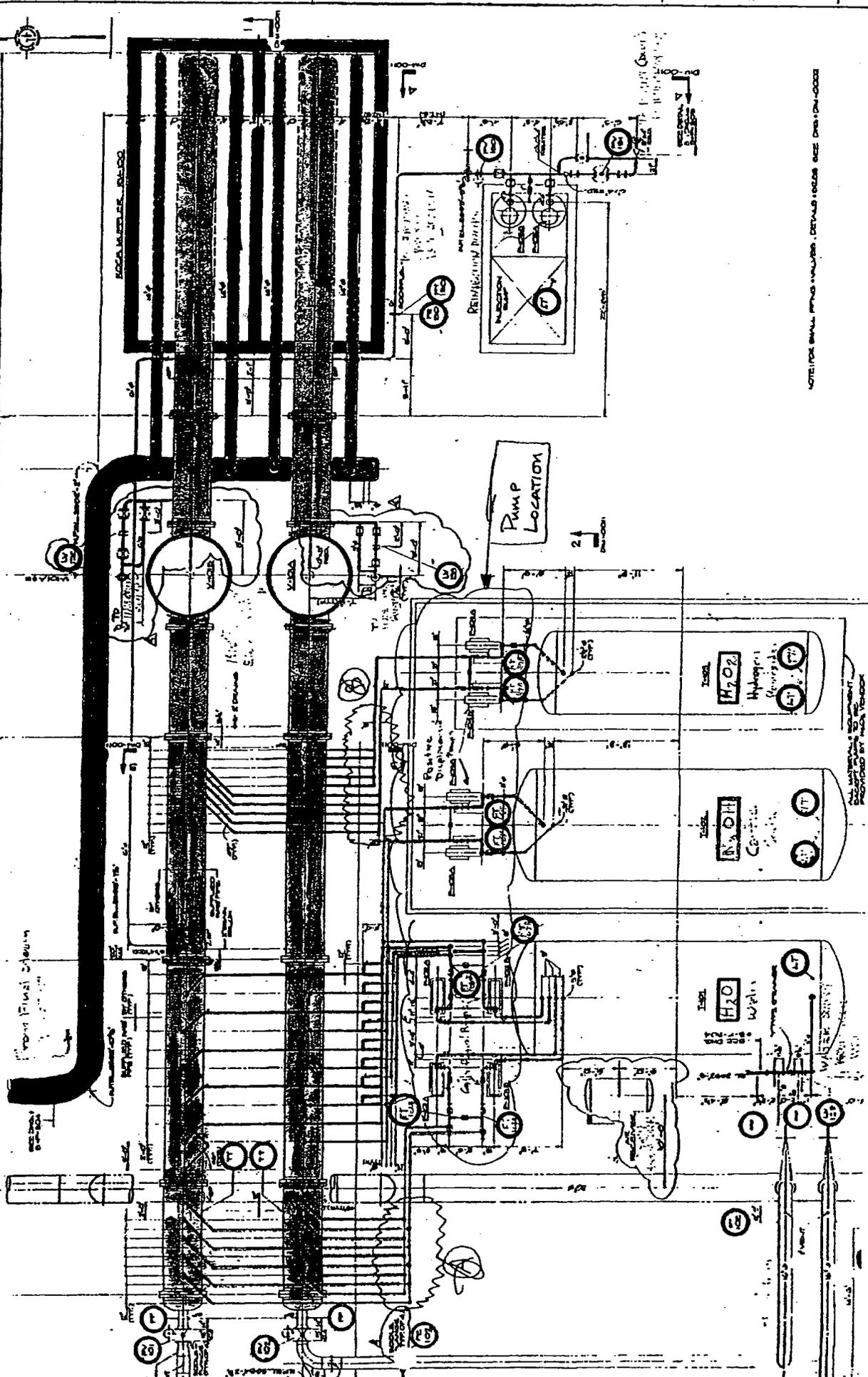
ATTACHMENT 1

APPROXIMATE SCALE
1" = 60'



A/C 80-018A
STEAM FIELD
AND
WELL MODIFICATION

Think Safe - Be Safe
THESE ARE NOT TO BE USED AS A BASIS FOR DESIGN OR CONSTRUCTION OF ANY FACILITY.
PLEASE REFER TO THE ORIGINAL DRAWINGS FOR ALL DIMENSIONS AND NOTES.
-SITE PLAN



NOTE: FOR SMALL PUMP ANALYSIS, DETAILS 10008 SEE DRAWING 10008

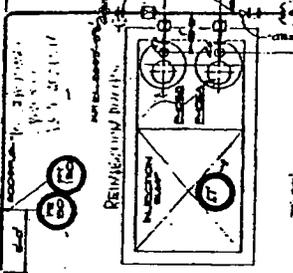
Pump LOCATION

TANK
H₂O₂
Hydrogen Peroxide

TANK
NaOH
Caustic Soda

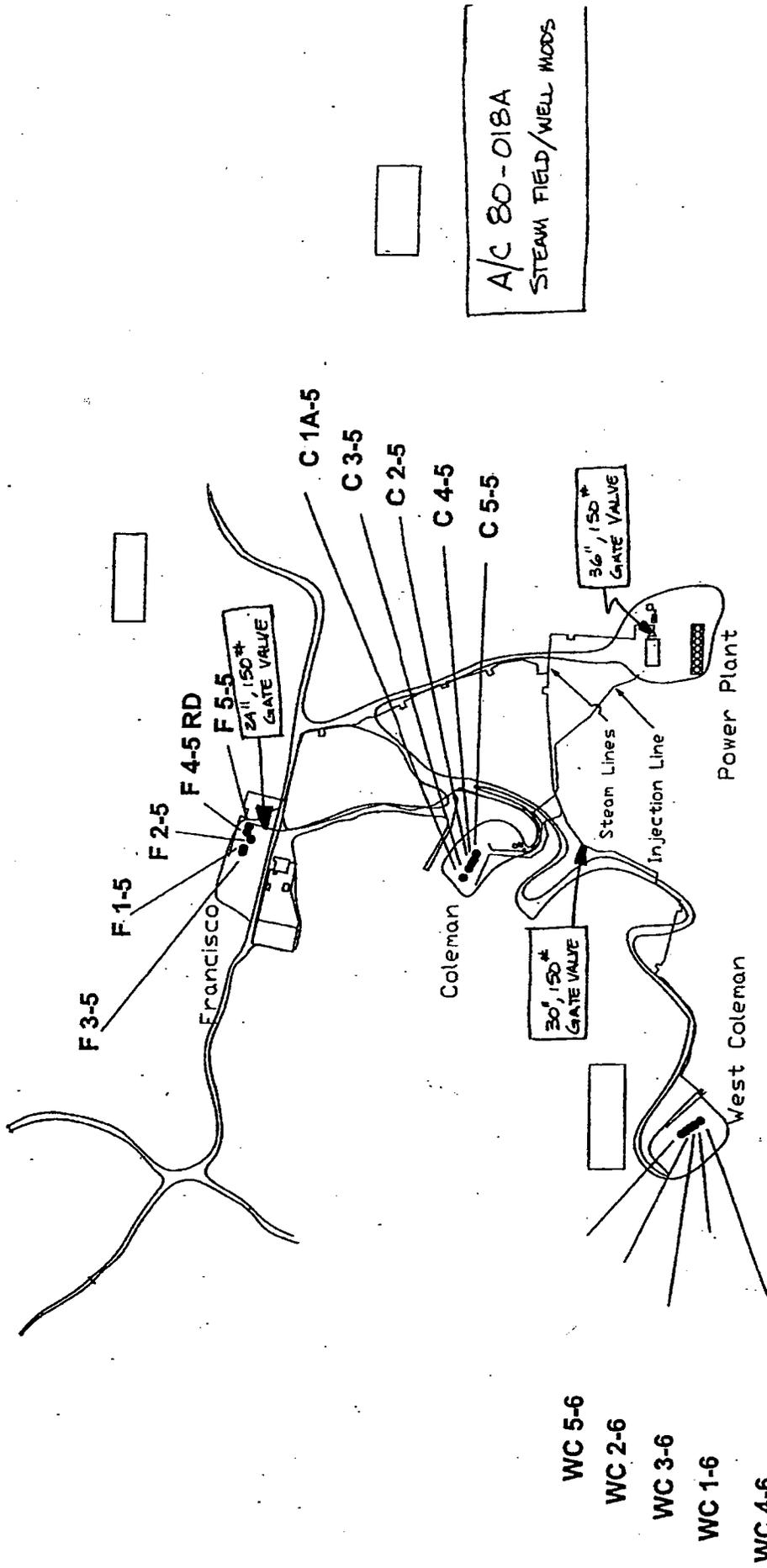
TANK
H₂O
Water

WATER TOWER
WATER PUMP
WATER STORAGE TANK
WATER DISTRIBUTION SYSTEM
WATER TREATMENT SYSTEM
WATER PURIFICATION SYSTEM
WATER ROSSIFICATION SYSTEM
WATER DISTILLATION SYSTEM
WATER CONDENSATION SYSTEM
WATER HEATING SYSTEM
WATER COOLING SYSTEM



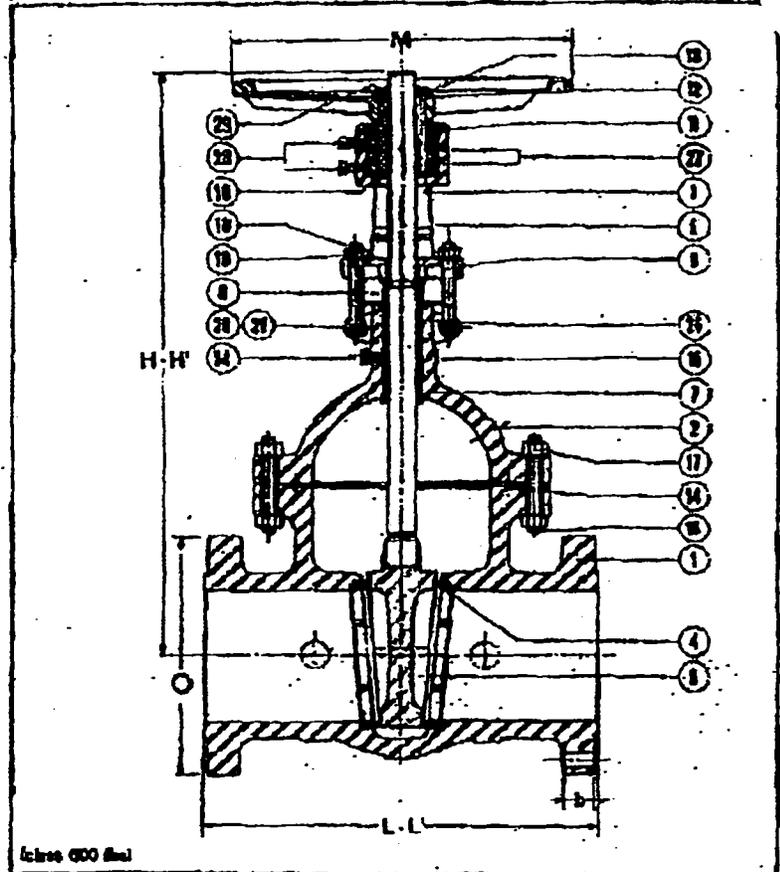
ATTACHMENT 2

WELL STATUS (AS OF JUNE 5 2006)



ATTACHMENT 3

Gate valves
 Bonnet Bonnet



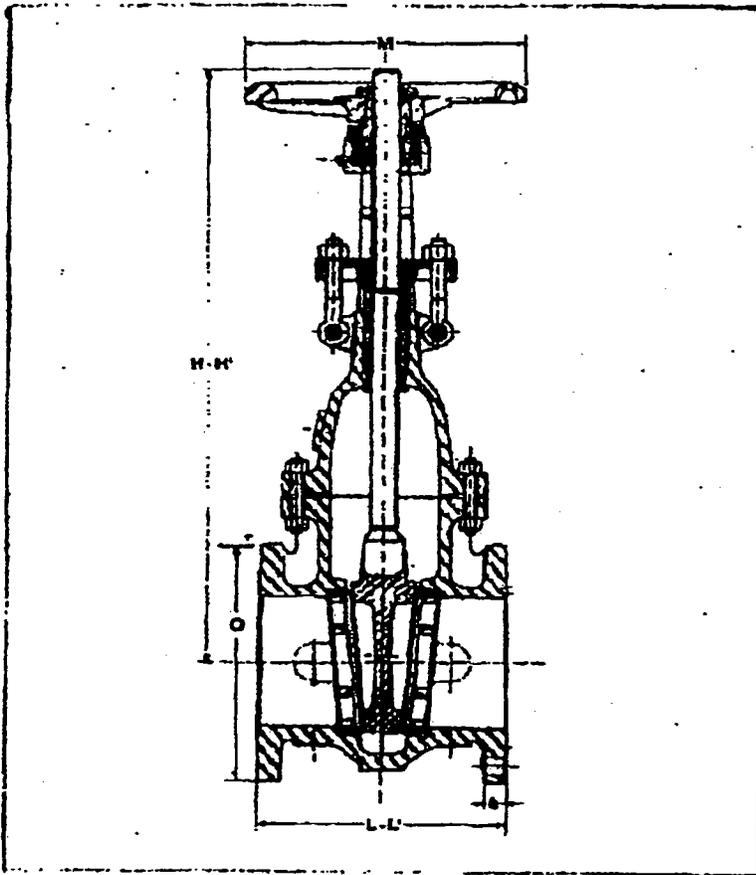
Part	Part	STANDARD MATERIALS			
1	BODY	Carbon steel ASTM-A 213-WCB	A 285-LCB or LO 2 of LCB	A 281-CFB or CFM	
2	BONNET				
3	YOKE		A 213-WCB		
4	GLAND BUSHING		A 182-F 204 or F 316		
5	GLAND FLANGE	A 105			
6	YOKE NUT		Cast Iron NI-Resist LB		
7	YOKE-NUT RETAINING NUT		A 105		
8	HANDWHEEL		Malleable Iron or Cast steel		
9	HANDWHEEL NUT		Brass		
10	BODY BONNET GASKET	182-022 182-023-4540	Rigid Joint cast iron Spiral Wound ASB 204 Labeling	Ring Joint F 204 F 316	
11	BOLT-BONNET STUD BOLT	A 182-B7 or 481-C7 or A 182-B16	A 285-L7	A 281-C7	
12	NUT FOR DITTO	A 182-B7	A 182-L7	A 181-L7	
13	EYE BOLT			A 285-B8	
14	NUT FOR DITTO			A 182-L8	
15	EYE-BOLT STUD BOLT	A 287 Or B		A 285-B8	
16	NUT FOR DITTO			A 285-B8	
17	YOKE STUD BOLT			A 182-L8	
18	NUT FOR DITTO			A 182-L8	
19	BONNET PLUG	A 105		A 182-F 204 or F 316	
20	STEM PACKING		J. Crane 1871 or equivalent		
21	YOKE THRUST BEARING		Steel		
22	GREASE RIFPLE		Steel		
23	SET SCREW		Carbon steel		
4	BEAT RING		See special notes on paper 3-06: TRIM MATERIALS		
5	WEDGE				
6	STEM				
7	BACK SEAT SUB-SING LANTERN				

Gate valves

Belted Bonnet
Fig. No. 1113

Class 150

Hydraulic test pressure:
Body: 425 psig. (29.3 kg/cm²)
Gests: 275 psig. (19.3 kg/cm²)



OVERALL DIMENSIONS (mm. & in.)

SIZE	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"	42"	48"	54"	60"	72"	84"	96"	108"	120"	144"	168"	192"					
H	340	380	427	443	515	578	644	690	820	900	1140	1300	1480	1640	1880	2010	2204	2404	2457	2630	2848	2708	2720	3220	3380	3341	3380	3341	3380	3341	3380	3341			
H'	300	330	374	392	450	510	550	600	700	750	950	1050	1150	1250	1450	1550	1650	1750	1800	1900	2000	2050	2150	2250	2350	2450	2550	2650	2750	2850	2950	3050	3150		
L	8 1/2	7	7 1/2	8	9	10	10 1/2	11 1/2	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	
L'	7	7 1/2	8	8 1/2	9 1/2	10 1/2	11 1/2	12 1/2	14 1/2	16 1/2	18 1/2	20 1/2	22 1/2	24 1/2	26 1/2	28 1/2	30 1/2	32 1/2	34 1/2	36 1/2	38 1/2	40 1/2	42 1/2	44 1/2	46 1/2	48 1/2	50 1/2	52 1/2	54 1/2	56 1/2	58 1/2	60 1/2	62 1/2	64 1/2	
M	170	200	220	240	260	300	320	340	400	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	2550	2650	2750	2850	
O	120	140	170	190	220	250	280	310	340	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650
B	14.5	17.0	19.0	21.0	24.0	28.0	32.0	36.0	42.0	48.0	58.0	68.0	78.0	88.0	98.0	108.0	118.0	128.0	138.0	148.0	158.0	168.0	178.0	188.0	198.0	208.0	218.0	228.0	238.0	248.0	258.0	268.0	278.0	288.0	

L = Face to face dimension, 1/2" flared face
L' = Face to face dimension, Ring Joint

SIZES 1 1/2", 2", 3" are not normally within our product range, but can be supplied on request



DESIGN SPECIFICATIONS

CAST STEEL GATE VALVES BB OS&Y

Flanged RF

GEAR TYPE

Material Specifications Trim No. 1

No.	Name of Part	Material
1	Body	ASTM A216 Gr. WCB
2	Body Seat Ring	13% Chromium
3	Stac	13% Chromium
4	Stem	13% Chromium
5	Bonnet	ASTM A216 Gr. WCB
6	Bonnet O-ring	*Stainless Steel 304 or better
7	Bonnet Bolt	ASTM A193 Gr. B7
8	Bonnet Bolt Nut	ASTM A194 Gr. 2H
9	Bonnet Bushing	13% Chromium
10	Lactam Ring	13% Chromium
11	Plug	Carbon steel
12	Gland Packing	Stainless Steel with Inconel
13	Gland	13% Chromium
14	Gland Flange	ASTM A105
15	Eye Bolt	Carbon steel
16	Eye Bolt Nut	Carbon steel
17	Eye Bolt Pin	Carbon steel
18	Yoke Sleeve	Cast Iron NI-Resist D2
19	Sleeve Bushing	Carbon steel
20	Gross Muffa	Steel
21	Bit Screw	Steel
22	Hex-Screw	Stainless Iron
23	Spring Washer	Steel
24	Washer Nut	Steel

*Class 150 only - Adjust sheet of corrugate metal.

Note Dimensions (in/mm)

Class 150

Flange Size	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24	28	30	36	40	42	48	52	60	
A	170	180	200	220	234	257	292	320	348	381	408	432	467	508	550	570	630	660	687	762	804	864	900
B	65	64	68	72	75	80	90	96	102	108	114	120	126	132	138	144	150	156	162	168	174	180	186
H	154	154	174	204	214	234	264	294	324	354	384	414	444	474	504	534	564	594	624	654	684	714	744
W	8	8	8	10	12	12	14	16	18	20	22	24	26	30	34	34	36	38	40	42	44	48	54

Size 20-inch and above are available with gear operated.

Note Dimensions (in/mm)

Class 300

Flange Size	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24	28	30	36	40	42	48		
A & B	84	84	114	12	15	16 1/2	18 1/2	20 1/2	22 1/2	24 1/2	26 1/2	28 1/2	30 1/2	33 1/2	36 1/2	39 1/2	45 1/2	48 1/2	51 1/2	57 1/2	63 1/2	69 1/2
H	16	17	18 1/2	20 1/2	22 1/2	24 1/2	27 1/2	30 1/2	33 1/2	36 1/2	39 1/2	42 1/2	45 1/2	48 1/2	51 1/2	54 1/2	57 1/2	60 1/2	63 1/2	66 1/2	69 1/2	72 1/2
W	8	8	8	10	12	12	14	16	18	20	22	24	26	30	34	34	36	38	40	42	44	48

Size 16-inch and above are available with gear operated.

Note Dimensions (in/mm)

Class 600

Flange Size	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24	28	30	36	40	42	48	
A & B	174	174	214	22	25	26 1/2	29 1/2	32 1/2	35 1/2	38 1/2	41 1/2	44 1/2	47 1/2	50 1/2	53 1/2	56 1/2	60 1/2	63 1/2	66 1/2	69 1/2	72 1/2
H	174	174	214	25 1/2	28 1/2	30 1/2	33 1/2	36 1/2	39 1/2	42 1/2	45 1/2	48 1/2	51 1/2	54 1/2	57 1/2	60 1/2	63 1/2	66 1/2	69 1/2	72 1/2	75 1/2
W	8	8	8	10	12	12	14	16	18	20	22	24	26	30	34	34	36	38	40	42	44

Size 14-inch and above are available with gear operated.

TKM

DESIGN SPECIFICATIONS**CAST STEEL BOLTED BONNET GATE VALVES****BODY**

The cast steel body is designed to insure a wall thickness which is greater at any point than the minimum specified by API Std. 600.

Special care has been taken with the design of the Class 150 valve body to that the elliptically shaped center section is free from intensified stresses in the critical area.

The bodies of above Class 300 are made circular in shape as much as possible to minimize distortion even under extreme operating conditions. Inlet and outlet port dimensions conform with ANSI B16.5 Pipe Fitting.

The screw-in type seat ring is standard to insure interchangeability. Except for Class 150, the standard body-bonnet joint is male and female.

BONNET

The bonnet and valve body have the same wall thickness. The body-bonnet flange drilling is spot-faced to exactly meet stud-bolt nuts.

The bonnet back seat bushing guarantees packing replacement even when the valve is fully opened.

The stem packing dimensions of the stuffing box are in accordance with API specifications.

Class 300 and above valves are equipped with a turner ring between the packing rings, and an external boss, which is drilled and tapped (and plugged), allows draining or water locking on a standard pipe connection.

YOKE

The yoke, when not integral with the bonnet, is exactly machined to match the bonnet and insure perfect alignment with the backseat bushing and the stem.

SEAT RING

Bottom seated type seat rings are screwed into the body. The seating surface is finished by grinding. They are forgings that have been heat treated to deliver them best mechanical properties and required hardness.

The difference in hardness between seats and wedges is in accordance with API specifications.

DISC

The standard disc of our valves is a one-piece flexible disc. Slots are machined on both sides of the wedge to allow it to travel correctly in the integrally cast body guides.

The wedge seating surfaces have been accurately machined, ground and lapped to a mirror finish to prevent leakage and eliminate galling.

STEM

The machined forged stem comes with a T-shape head, which connects the slot of the wedge.

The spherically shaped contacting surfaces of the head gives greater strength and durability.

The stem dimensions are in accordance with API Std. 600 specifications.

The heat treated stem delivers adequate mechanical properties as well as excellent surface hardness. Further, opening/closing friction is minimized by accurate machining and grinding.

GLAND

The self-aligning gland comprises a gland flange and is cylindrically shaped.

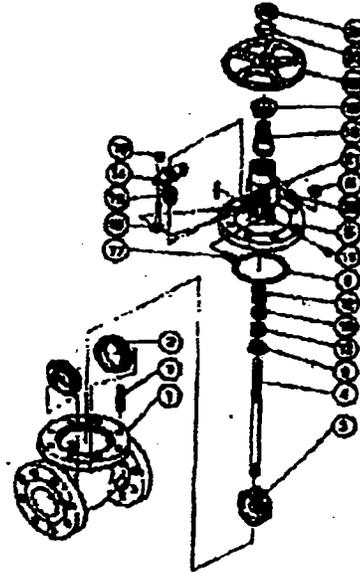
A shoulder prevents it from pressing the gland packing and getting pushed into the stuffing box.

YOKE SLEEVE

The hexagonally tapered upper portion of the yoke sleeve fixes the handwheel.

The base adopts the form of a shoulder and is held in position by a sleeve nut which sustains upward thrust.

To reduce the required opening force, thrust ball bearings are used for 18" and above in Class 150, 8" and above in Class 300, and 6" and above in Class 600.



The standard material of the yoke sleeve is Nodular Ni-resist D2 with over 1150°C (2100°F) dissolution point in accordance with API Std. specifications.

BOLTING

The body-bonnet bolts are manufactured in accordance with API Std. 600 specifications.

The nuts also strictly conform with ANSI B.1.

The stud bolt nuts, hexagonal, rigid and hot-forged, bear material location as well as do the bolt nuts made according to ANSI B18.2.

ATTACHMENT 4

PowerFlex® 4 AND PowerFlex® 40 AC DRIVES

PROVIDE OPTIMIZED SIMPLICITY

Providing users with powerful motor speed control in a compact, space saving design, the Allen-Bradley PowerFlex 4 and PowerFlex 40 AC drives are the smallest and most cost effective members of the PowerFlex® family of drives. Ideal for machine level speed control, these products provide the application versatility to meet the demands of global OEMs and end users who require flexibility, space savings and ease of use. The PowerFlex 4 and PowerFlex 40 AC drives have commonality in three key areas:

Flexible Packaging and Mounting Options

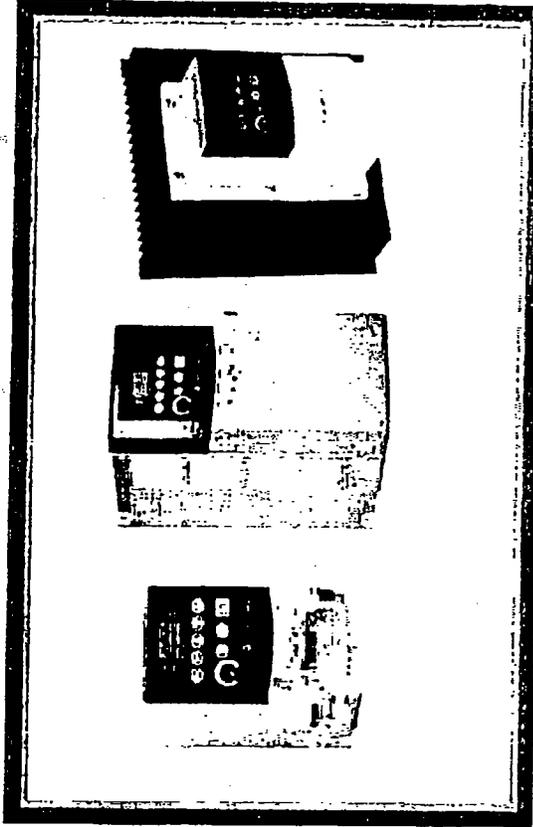
- Installation can be a virtual snap using the DIN rail mounting feature on A and B frame drives.
- Flange mount drives are available to reduce overall enclosure size.
- Zero Stacking™ is allowable for ambient temperatures up to 40°C, saving valuable panel space. 50°C ambient temperatures are permitted with minimal spacing between drives.

Easy to Start up and Operate

- Integral keypad features a 4 digit display and 10 additional LED indicators providing intuitive control.
- The keypad, control keys, and local potentiometer are active out of the box, simplifying start up.
- The 10 most commonly programmed parameters are grouped together for fast and easy start up.

Versatile Programming and Network Solutions

- Integral RS485 communications enable the drives to be used in a multi-drop network configuration. A serial converter module provides connectivity to any controller that has the ability to initiate DFI messaging.
- DriveExplorer™ and DriveTools™ SP software can be used to program, monitor and control the drives.
- A NEMA 4X remote and NEMA 1 handheld LCD keypad provide additional programming and control



- 1** PowerFlex 4 AC Drive 0.2 to 3.7 kW; 0.25 to 5 hp 120, 240, 480 V
- 2** PowerFlex 40 AC Drive, 0.4 to 11 kW; 0.5 to 15 hp 120, 240, 480, 600 V (Product shown with DriveExplorer optiori)
- 3** PowerFlex 4 and 40 Flange Mount Drives

PowerFlex 4 AC Drive

Designed with simplicity and space savings in mind, the PowerFlex 4 is:

- Ideal for applications with limited panel space
 - An economical replacement for electromechanical devices or DC solutions
- ### *PowerFlex 40 AC Drive*

The PowerFlex 40 AC drive shares all the same features and functionality of the PowerFlex 4 AC drive. In addition the PowerFlex 40 AC drive features sensorless vector control and has additional I/O capability. Designed with application versatility and robust performance in mind, the PowerFlex 40 AC drives also features:

- 0-10V or 4-20mA (10-bit) analog output for feedback or as reference for other drives
- Timer, counter and StepLogic™ functions can reduce hardware design cost, simplifying control schemes

VFD

PowerFlex 4

PowerFlex 40

Operator Interface	Integral keypad with a 4 digit display, 10 additional LED indicators and local potentiometer, optional Remote Human Interface Modules (RHIM)																																		
Standards	UL, C-Tick, CE, EMC EN61800-3, Low Voltage EN60204-1/EN50178																																		
Input Specifications	1 Phase Voltage: 100 - 120V / 200 - 240V 3-Phase Voltage: 200 - 240V / 380 - 480V Frequency: 47 to 63 Hz Logic Control Ride Through: >0.5 seconds, 2 seconds typical. Voltage: Adjustable from 0V to rated motor voltage Intermittent Current: 150% for 60 seconds	1 Phase Voltage: 100 - 120V / 200 - 240V 3-Phase Voltage: 200 - 240V / 380 - 480V / 480 - 600V Frequency: 47 to 63 Hz Logic Control Ride Through: >0.5 seconds, 2 seconds typical Voltage: Adjustable from 0V to rated motor voltage Intermittent Current: 150% for 60 seconds																																	
Output Specifications	Voltage: Adjustable from 0V to rated motor voltage Intermittent Current: 150% for 60 seconds																																		
Enclosure and Ambient Operating Temperature	Open type / IP20: -10° to 50° C (14° - 122°F) NEMA Type 1 / IP30: -10° to 40° C (14° - 104°F) with optional conduit box kit																																		
Frequency Range	0 - 240 Hz	0 - 400 Hz																																	
Control	24V sink or source control 3 dedicated inputs for start, stop and reverse 2 programmable inputs for functions such as preset speed, jog, etc. 0 - 10V or 4 - 20mA input 1 programmable form C relay output	24V sink or source control 3 dedicated inputs for start, stop and reverse 4 programmable inputs for functions such as preset speeds, jog, etc. ± 10V (bipolar), 0 - 10V and 4 - 20 mA 1 programmable form C relay output 1 analog output (0 - 10V or 4 - 20mA) 2 programmable opto outputs																																	
Dynamic Braking	7th IGBT included on all ratings (except no brake drives)																																		
Carrier Frequency	2-16 kHz. The drive rating is based on 4 kHz																																		
Frequency Accuracy	Digital input within + 0.05% of set frequency Analog input within 0.5% of maximum output frequency																																		
Ratings	<table border="1"> <thead> <tr> <th>Voltage Class</th> <th>A Frame Ratings</th> <th>B Frame Ratings</th> </tr> </thead> <tbody> <tr> <td>100-120V, 1Ø</td> <td>0.2-0.37 kW (0.25-0.5 HP)</td> <td>0.75-1.1 kW (1-1.5 HP)</td> </tr> <tr> <td>200-240V, 1Ø</td> <td>0.2-0.75 kW (0.25-1 HP)</td> <td>1.5-2.2 kW (2-3 HP)</td> </tr> <tr> <td>200-240V, 3Ø</td> <td>0.2-1.5 kW (0.25-2 HP)</td> <td>2.2-3.7 kW (3-5 HP)</td> </tr> <tr> <td>380-480V, 3Ø</td> <td>0.37-1.5 kW (0.5-2 HP)</td> <td>2.2-3.7 kW (3-5 HP)</td> </tr> </tbody> </table>	Voltage Class	A Frame Ratings	B Frame Ratings	100-120V, 1Ø	0.2-0.37 kW (0.25-0.5 HP)	0.75-1.1 kW (1-1.5 HP)	200-240V, 1Ø	0.2-0.75 kW (0.25-1 HP)	1.5-2.2 kW (2-3 HP)	200-240V, 3Ø	0.2-1.5 kW (0.25-2 HP)	2.2-3.7 kW (3-5 HP)	380-480V, 3Ø	0.37-1.5 kW (0.5-2 HP)	2.2-3.7 kW (3-5 HP)	<table border="1"> <thead> <tr> <th>Voltage Class</th> <th>B Frame Ratings</th> <th>C Frame Ratings</th> </tr> </thead> <tbody> <tr> <td>100-120V, 1Ø</td> <td>0.4-1.1 kW (0.5-1.5 HP)</td> <td></td> </tr> <tr> <td>200-240V, 1Ø</td> <td>0.4-1.5 kW (0.5-2 HP)</td> <td>2.2 kW (3 HP)</td> </tr> <tr> <td>200-240V, 3Ø</td> <td>0.4-3.7 kW (0.5-5 HP)</td> <td>5.5-7.5 kW (7.5-10 HP)</td> </tr> <tr> <td>380-480V, 3Ø</td> <td>0.4-4.0 kW (0.5-5 HP)</td> <td>5.5-11 kW (7.5-15 HP)</td> </tr> <tr> <td>480-600V, 3Ø</td> <td>0.75-4.0 kW (1-5 HP)</td> <td>5.5-11 kW (7.5-15 HP)</td> </tr> </tbody> </table>	Voltage Class	B Frame Ratings	C Frame Ratings	100-120V, 1Ø	0.4-1.1 kW (0.5-1.5 HP)		200-240V, 1Ø	0.4-1.5 kW (0.5-2 HP)	2.2 kW (3 HP)	200-240V, 3Ø	0.4-3.7 kW (0.5-5 HP)	5.5-7.5 kW (7.5-10 HP)	380-480V, 3Ø	0.4-4.0 kW (0.5-5 HP)	5.5-11 kW (7.5-15 HP)	480-600V, 3Ø	0.75-4.0 kW (1-5 HP)	5.5-11 kW (7.5-15 HP)
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Dimensions mm (inches)	A Frame: 152 (5.98) H X 80 (3.15) W X 136 (5.35) D B Frame: 180 (7.09) H X 100 (3.94) W X 136 (5.35) D	B Frame: 180 (7.09) H X 100 (3.94) W X 136 (5.35) D C Frame: 260 (10.2) H X 130 (5.1) W X 180 (7.1) D																																	
Additional Functionality	Sensorless vector control Process PID StepLogic™ functions (relays and timers) Integral communication options: <ul style="list-style-type: none"> - DeviceNet - EtherNet/IP - PROFIBUS DP - ControlNet PTC input compatible																																		
Additional Accessories	EMC line filters Line reactors Dynamic brake resistors DSI cable accessories																																		

PowerFlex, Zero Stacking, DriveExplorer, StepLogic and DriveTools SP are trademarks of Rockwell Automation. Trademarks not belonging to Rockwell Automation are property of their respective companies.

www.rockwellautomation.com

Motors, Drives and Power Transmission Solutions

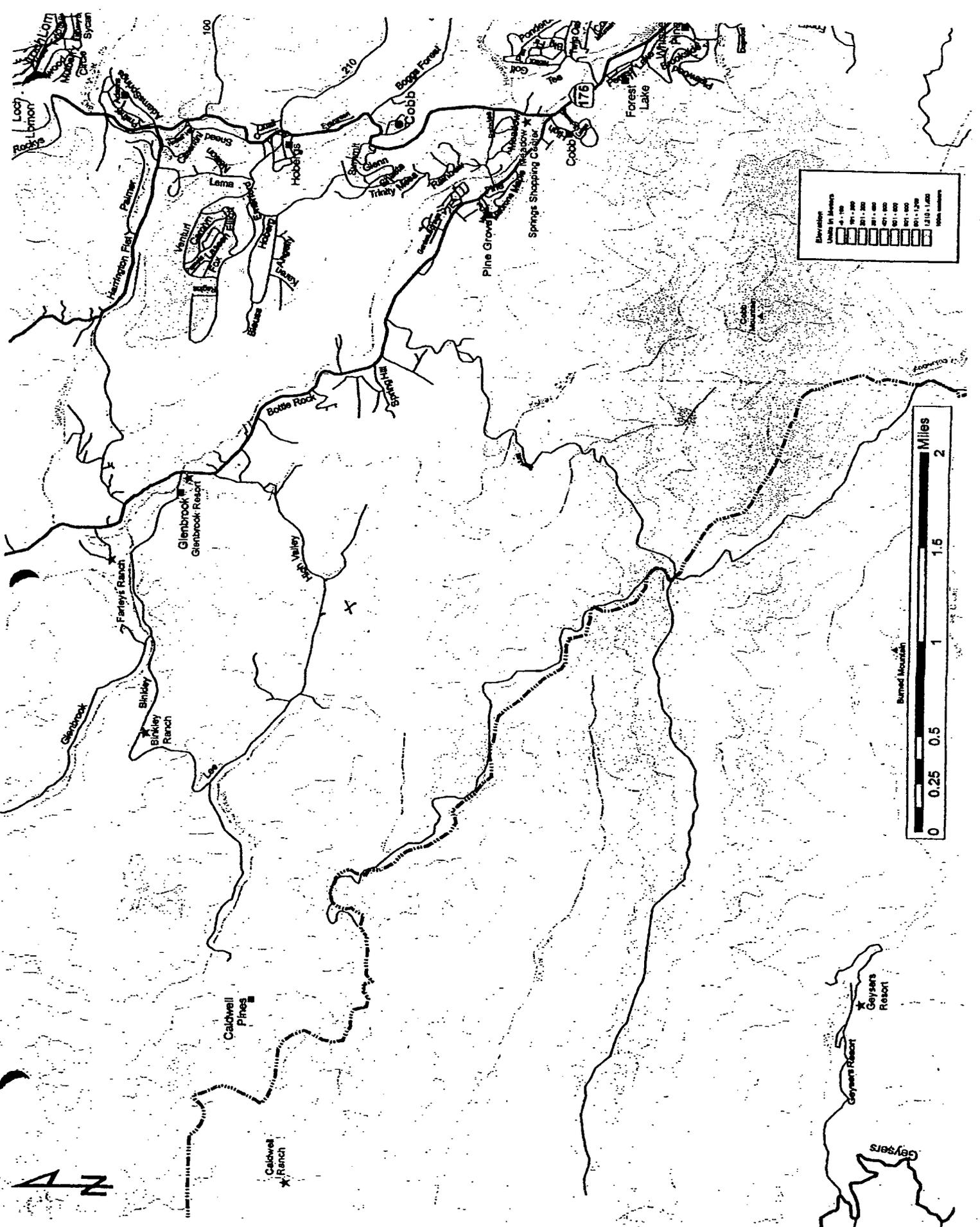
Americas: Rockwell Automation, 6040 Ponders Court, Greenville, SC 29615-4617 USA, Tel: (1) 864.297.4800, Fax: (1) 864.281.2433

Europe/Middle East/Africa: Rockwell Automation, Herman-Heinrich-Gossen-Strasse 3, 50858 Köln, Germany, Tel: 49 (0) 2234 379410, Fax: 49 (0) 2234 3794164

Asia Pacific: Rockwell Automation, 55 Newton Road, #11-01/02 Revenue House, Singapore 307987, Tel: (65) 6356 9077, Fax: (65) 6356 9011

Bottle Rock Power Corporation
Application for Authority to Construct Modification

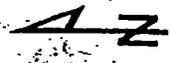
Attachment
Facility Plot Plan



Elevation
Units in Feet

4-100
101-200
201-300
301-400
401-500
501-600
601-700
701-800
801-900
901-1,000
1,001-1,100
1,101-1,200
1,201-1,300
1,301-1,400

1000 feet



Burned Mountain

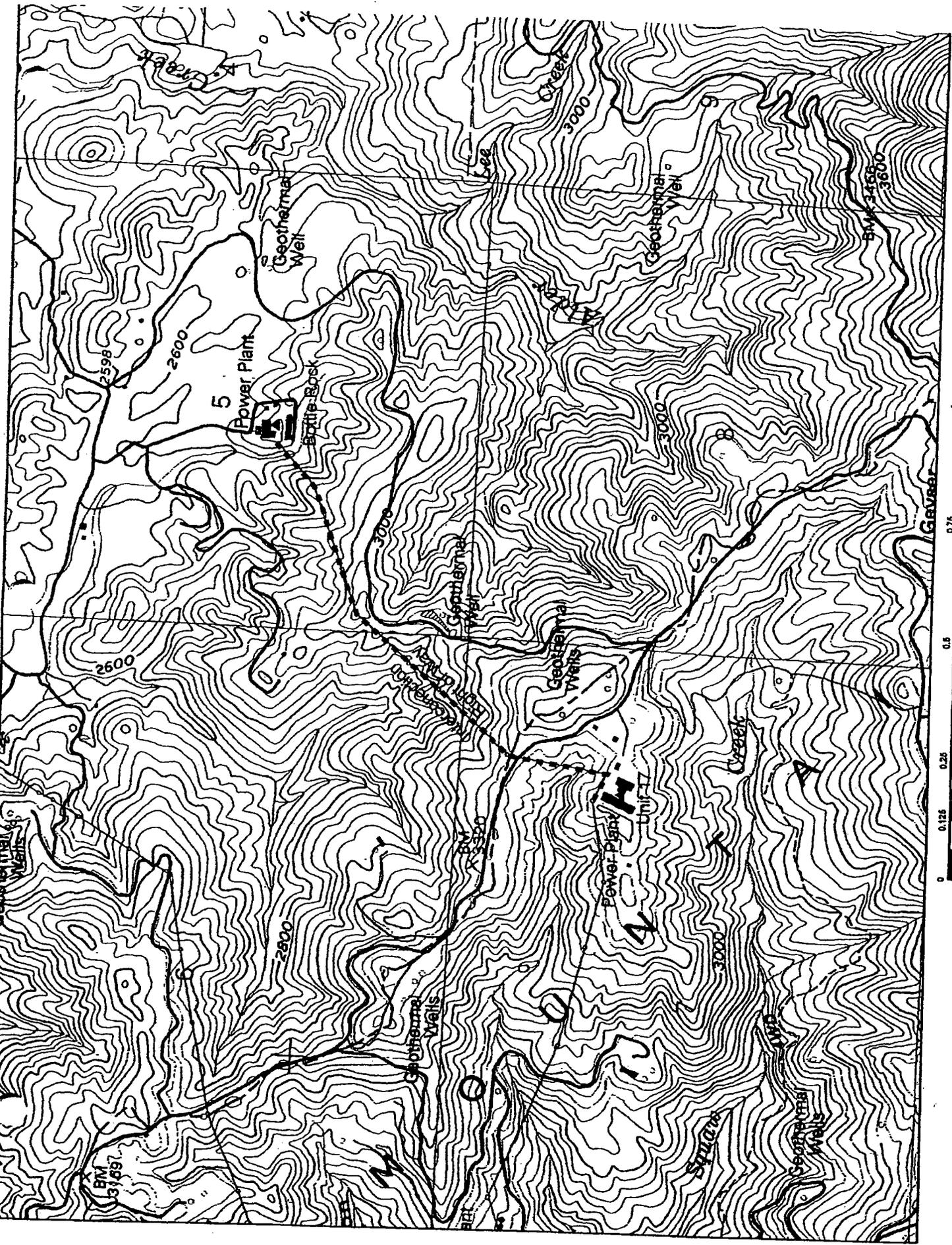


EXHIBIT E
DOCUMENT 4 OF 5



**LAKE COUNTY AIR QUALITY
MANAGEMENT DISTRICT**
885 Lakeport Blvd
Lakeport, CA 95453
Phone (707) 263-7000

Robert L. Reynolds
Air Pollution Control Officer
Fax (707) 263-0421
bobr@lcaqmd.net

Lake County Record Bee
Attention: Legal Notices
P.O. Box 849
Lakeport, CA 95453

July 14, 2006

**Subject: Legal Notice: Authority to Construct (Modify) Permit Applications
Bottle Rock Power Corporation**

Dear Editor :

Please publish the below legal notice in the earliest possible Edition of the Record Bee.

Thank you,

Elizabeth Knight, AQS

LEGAL NOTICE

The Lake County Air Quality Management District has received an application from Bottle Rock Power Corporation to modify existing geothermal power plant and steam field components. The facility is located 1.2 miles southwest of the community of Glenbrook and 1.7 miles west of the community of Pine Grove. The project includes modifications to equipment and processes that control and/or result in air emissions of hydrogen sulfide, particulate matter, arsenic, mercury and other components contained in the geothermal steam. The modifications are intended to improve the efficiency and reliability and to modernize several components of the power plant and geothermal steam field. Major components to be modified include the following: installation of mechanical vacuum pumps to augment the steam off gas ejectors; improvements to the Gas scrubbing unit, which removes and converts H₂S to elemental sulfur; improvements to the delay tank, oxidizer and solids removal system; the addition of a carbon scrub system to remove mercury from the non-condensable gas; secondary condensate treatment system improvements; replacement of steam field and power plant control systems by a single modern integrated distributed control system located at the power plant; steam pipeline and well reorientation and modifications to incorporate remotely controlled components and additional control valving; improvements and changes in process for the steam line de-super heat component; and modification of the backup stacking abatement system to improve performance, efficacy, and match capacity to a lower initial operational

demand.

Pertinent documents are available for review at the District Office, 885 Lakeport Blvd., Lakeport, CA 95453. Comments may be submitted by mailing to the above address, by calling the Lake County Air Quality Management District Office at (707) 263-7000, by FAX to (707) 263-0421, or in person. A public workshop to provide opportunity for explanation of the modifications, to answer questions and provide opportunity for input is scheduled at 7:00 PM on July 27, 2006, at the Bottle Rock Power Plant Field Office located at 3785 High Valley Road (across from the Francisco Pad & drilling rig) approximately 1 mile from the intersection of High Valley Road and Bottle Rock Road. Enter through the controlled gate on Bottle Rock Road.

In order to receive consideration, comments should be submitted within ten (10) days of this notice.

EXHIBIT E
DOCUMENT 5 OF 5

-PUBLIC INFORMATION RELEASE-

CONTACT

Bob Reynolds, APCO (707) 263-7000

RELEASE DATE: July 21, 2006

Agenda for Bottle Rock meeting 7/27/2006

---- Modifications to Bottle Rock Power Plant AECS ---
----- Bottle Rock Field Office -----
3785 High Valley Road, Kelseyville, CA

1. Introductions - LCAQMD staff, BRPC staff and participants.
2. Briefly review history of Bottle Rock Power Plant & Field - Brief summary on Air Emissions Control of Sources, Monitoring and Source Testing - include concept of GAMP.
3. Purpose of this Public Hearing ---- To address AIR EMISSIONS CONTROL SYSTEM (AECS) AND PROPOSED CHANGES TO EQUIPMENT AND PROCESSES. No backsliding or emissions increase, or resulting less reliability of equipment is allowed under the review process initiated. The intent is to modernize, make more reliable and efficient.
4. Present air permit(s) status, and the changes proposed to equipment, procedures and approach.
5. Questions as we go on each or at the end?
6. Summarize and method of formally submitting comment.
7. Identify any unanswered questions, and associated issues with the intended modification activity.

EXHIBIT F

**PETITION TO AMEND FINAL DECISION TO RE-FIRE PLANT
BOTTLE ROCK POWER PLANT
79-AFC-4**

EXHIBIT F

BIOLOGICAL RESOURCES ANALYSIS

This analysis considers and evaluates effects on biological resources from the operation of Bottle Rock Power Plant (“BRPP”), if the facility is granted operational status and modified by this Petition to Amend. The proposed changes to the Final Decision will not cause any significant adverse effects on biological resources. Any changes at the facility are limited to restoration of existing buildings, machinery, transmission lines, steam gathering lines, and access roads. The plant will not change its capacity and will decrease output from previous levels. Thus, the scope of potential effects of the facility on biological resources will not shift by changing BRPP from suspended to operational status.

There are 20 Conditions of Certification (“COCs”), which were designed to protect biological resources on the leasehold. Of these, 13 conditions were suspended in CEC Order no. 05-0511-03, while 7 remained in effect during BRPP’s suspended status. The 13 suspended COCs will need to be activated when BRPP returns to operational status. Activation of these COCs does not necessitate a change in the practices mandated therein. BRPC will maintain compliance with the remaining seven COCs, continuing all current sampling, monitoring, and mitigation practices.

Mitigation of Construction Effects

Actions required under BIO 5-1.b, 5-1.c, and 5-1.d were taken prior to operation. A return to operation will not involve any construction activities; thus protection against erosion or stream disturbance from construction, as provided by 5-1.c and 5-1.d is not applicable. The biological resources mitigation plan prepared under 5-1.b remains in effect and is implemented through BIO 5-3.a through 5-3.i and 5.4.

Erosion Control

Permanent vegetation has been established on cut and fill slopes since construction 26 years ago. Thus, a duty under BIO 5-1.f to inspect for gully erosion during revegetation has been fulfilled. With no new construction, there will be no additional impact on these slopes and, therefore, no effect on this COC. BIO 5-1.e was designed to limit the impact of erosion during construction and earth-moving activities that might take place during the rainy months of December to March.

TO AMEND FINAL DECISION TO RE-FIRE PLANT
Bottle Rock Power Plant (79-AFC-4)
Exhibit F- Biological Resources Analysis

However, no earthmoving activities are contemplated in returning BRPP to operative status, so there will be no effect on this condition when it is activated.

Protection of Vegetation

Under BIO 5-1.g, during the first three years of operation, a vegetation monitoring program was undertaken to evaluate the potential effect of borates in cooling tower drift. This three-year program was accomplished, so there will be no effect when activating this COC. Additional vegetation and soil monitoring was continued over the course of the plant's operation through BIO 5-3.a and 5.3-f. These two conditions are being activated, but a change in monitoring methods under each COC is not necessary, because drift levels will be the same, or less than, levels under previous operation. In returning BRPP to operational status, the cooling tower drift eliminators will be replaced and will meet, and likely exceed, LCAQMD permit conditions on drift rate.

Protection of Wildlife

During the application for certification proceeding, there were concerns about the potential effect of cooling tower drift on wildlife in habitat adjacent to the plant. Activating BIO 5-3.e and 5-3.g will restart wildlife monitoring activities, which were suspended by the CEC's Order. As noted above, drift rates will be maintained at previous levels. New drift eliminators may even decrease drift rates, further mitigating any potential impact on wildlife. Therefore, it is not necessary to implement any additional wildlife monitoring methods.

Initially after operation began, revegetated cut and fill slopes were monitored not only for erosion problems under BIO 5-1.f, but also for wildlife use under BIO 5-4. This monitoring took place during the first ten years of operation. Verification that the slopes have been successfully reintegrated into wildlife habitat would not require reinitiating the same level of study and monitoring that took place under BIO 5-4. Unless the 10-year study's conclusions expressed concerns about wildlife use of the slopes, this COC does not need to be changed to provide for additional biological study.

Protection of Rare, Endangered or Threatened Species

BIO 5-1.a protected *Lomatium repostum* populations on the property from disturbance during construction. There is no construction associated with BRPP's restart, so there is no effect on this condition.

Since 1980, the U.S. Fish and Wildlife Service has listed 220 threatened or endangered species in California. During that same time, California listed an additional 62 rare, threatened, or endangered species, which are not protected under federal law.

Only one of these 220 federally listed plant and animal species appears to have been recorded in Lake County, though not in an area near the BRPP property. That species, the Loch Lomond

TO AMEND FINAL DECISION TO RE-FIRE PLANT
Bottle Rock Power Plant (79-AFC-4)
Exhibit F- Biological Resources Analysis

coyote-thistle, listed as endangered in 1985, is restricted to the bed of a seven acre vernal lake near Loch Lomond.

BRPP's property consists mainly of mixed evergreen and yellow pine forest habitat and chaparral habitat. Chaparral and oak woodland habitat in the central Sierra Nevada foothills hosts four endangered and one threatened plant species in gabbroic or serpentine-derived soils.¹ Chaparral habitat in Lake County is not likely to present similar habitat to support these species, however, and no occurrence of these protected species has been recorded in Lake County. Also, the California red-legged frog was listed as a threatened species in 1996, but the FWS rule expressly did not extend Endangered Species Act protection to sub-species of the red-legged frog in Glenn, Sonoma, or Lake Counties, west of the Central Valley Hydrological Basin.²

The Lake County western flax and Tracy's *eriastrum* are protected under the California ESA. The endangered western flax is known from six occurrences in serpentine ecosystems within a five square mile area north of Middletown, but other populations have not been recorded. Tracy's *eriastrum* is listed as a California rare species. It occurs in dry, gravelly flats in closed-cone forest, chaparral, and serpentine scrub habitat over six counties, including Lake County. However, fewer than twenty populations of Tracy's *eriastrum* have been recorded over its six-county range. Therefore, likelihood of finding a population of Tracy's *eriastrum* on the property is slim.

Conclusion

As demonstrated above and in the Petition to Amend, existing and proposed activities to re-fire BRPP pose no threat to biological resources at or around the facility. The Final Decision and all related modifications and orders offer the appropriate level of protection for sensitive resources and operational changes will not alter these measures of protection.

¹ Stebbins' morning glory, El Dorado bedstraw, Pine Hill flannelbrush, Pine Hill *ceanothus*, and Layne's butterweed were listed in 1996. 61 Fed. Reg. 54346 (1996).

² 61 Fed. Reg. 25814 (1996).

EXHIBIT G

**PETITION TO AMEND FINAL DECISION TO RE-FIRE PLANT
BOTTLE ROCK POWER PLANT
79-AFC-4**

EXHIBIT G

TRAFFIC AND TRANSPORTATION ANALYSIS

This analysis considers and evaluates the effect that the operation of Bottle Rock Power Plant (“BRPP”) will have on traffic conditions if operated pursuant to the Final Decision modified per this Petition to Amend. Generally, the renewed operation of BRPP will not have significant effect on traffic conditions, nor does it present any significant transportation issues. In part this is because the changes to the operation of BRPP are minimal. The past operation of BRPP presented no traffic or transportation issues, nor was it expected to when approved in the Final Decision.

This exhibit and focused analysis is being provided in part to help ensure that the public, the CEC, and other agencies have full understanding about the renewal of operations at BRPP. The Final Decision and COCs contain little information about traffic and transportation. This is, in part, because the level of impact potential was and continues to be very low. The existing Final Decision includes full authority for and completes the environmental analysis for all the activities described under operations below. Most of the refurbishment also consists of maintenance activities already analyzed and permitted by the Final Decision. The small number of changes to the plant proposed in this Petition to Amend is insignificant from a traffic and transportation perspective. Restored operations at BRPP will probably be the most contrasting event in terms of comparing the previous 15 years at BRPP to the next fifteen years. Fortunately, BRPP is located in an ideal setting and presents few daily, weekly, and monthly car and truck traffic that make significant impacts unlikely. More over, these effects remain essentially or nearly the same as those already assessed and approved by the Final Decision.

Location, Setting and Surrounding Area

BRPP is located at one of two terminuses of High Valley Road. High Valley Road is a paved, private, gated access road flowing west from Bottle Rock Road. It begins at Bottle Road approximately 1.1 miles north of the town of Cobb. Bottle Rock Road runs approximately 10 miles along a generally north-south route from Highway 175 in the town of Cobb to the south to its intersection with Highway 29 in the north. (See Figures 1 and 2.) Bottle Rock Road has no stop signs except at its terminus ends and generally serves a moderately populated rural region on western side of highway 175. Because it parallels Highway 175, and because Highway 175 intersects with Highway 29 at a more convenient location, Bottle Rock Road receives a modest amount of through traffic except for those residents that live on or near the road. Casual observation shows peak usage to occur in morning and evenings during weekdays. Even then, the total number of vehicles passing the High Valley Road entrance is likely to be no more than

PETITION TO AMEND FINAL DECISION TO RE-FIRE PLANT
Bottle Rock Power Plant (79-AFC-4)
Exhibit G- Traffic and Transportation Analysis

60 vehicles per hour. Trucks and vehicles have little difficulty accessing or exiting High Valley Road from or onto Bottle Rock Road. The gate for High Valley Road is set back sufficiently to allow trucks to pull off of Bottle Rock Road while waiting for the gate to open or to be opened.

High Valley Road is a paved private access with up-hill portions leading to BRPP. Several private residences are on the lower portions of High Valley Road. After those residences, High Valley Road has several branch roads that go to the steam fields and other residences that are located beyond High Valley Road. The main trunk of High Valley Road terminates at a higher elevation at the plant. A second security gate allows BRPP to be secured from persons accessing steam fields or the private residences from the other end of High Valley Road. Much of High Valley Road was improved between 1980 and 1983 as part of the construction activities associated with BRPP and with the development of the steam fields and steam transmission line. BRPP was assigned the easements held by DWR for use of High Valley Road for BRPP. Thus, the use of High Valley Road for access to geothermal plant operations is by right.

DWR was required to install adequate parking to support operations and maintenance. Ten parking spaces are provided in front of the building. Parking is also available along one side of High Valley Road on the paved surface only, as the Road approaches BRPP. Overflow parking is available at the lot across from the Francisco Well Pad.

BRPP Refurbishment

BRPP is being and will be further refurbished. Steamfield entry began more than one year ago as well. With the approval of this Petition to Amend, further activities will occur at BRPP to prepare the plant for renewed operation. Generally, none of these activities will even approach a significant portion of the level of activity that occurred when BRPP was built. It is expected that continued and increasing maintenance and refurbishment will peak with levels of approximately 40 workers accessing the site on weekdays and approximately 20 truck trips per day maximum. The total period for refurbishment should not extend more than 60 to 90 more days past approval of the Petition to Amend. Activities are detailed in Section III of the Petition to Amend. They include painting, repair and maintenance of equipment, some new equipment installation, and general grounds keeping activities.

BRPP Operations

The operation of BRPP will not differ significantly from past operations of BRPP. Two or three plant operators will usually be on shift for actual operations. During day shift, approximately 8 to 10 other employees will access the site and work in administrative, repair and maintenance or grounds keeping roles. Occasionally, perhaps once every few years, BRPP will undergo periods of focused maintenance that might increase vehicle trips by approximately 50% for a short one to three month period. Very occasionally, perhaps every 8 to 15 years, BRPP could undergo a significant maintenance period and extended outage of up to three months.

Besides employees, trucks will also deliver or remove materials and supplies to or from BRPP. The most frequent deliveries will likely be iron chelate and sodium hydroxide. Both will require

PETITION TO AMEND FINAL DECISION TO RE-FIRE PLANT
Bottle Rock Power Plant (79-AFC-4C)
Exhibit G- Traffic and Transportation Analysis

delivery of approximately 4000 gallons every three to six months. Lubricating oil and diesel fuel oil will require delivery approximately once a year. Small drums containing dry vanadium compound will be delivered once every three to five years. Miscellaneous supplies such as office materials, small parts, coffee, etc. will probably produce a small truck or vehicle trip once or twice per week.

It is worth noting, that by converting to iron chelate instead of hydrogen peroxide as the secondary hydrogen sulfide abatement chemical, the number and frequency of truck trips from past operations will actually go down. It is likely that maintaining a continuous supply of hydrogen peroxide during previous operations required weekly deliveries. Iron chelate will be delivered significantly less often, probably no worse than once every three months.

The chief material removed from BRPP will be the sulfur co-product of the Stretford hydrogen sulfide abatement system. It is expected that one roll-off bin truck will deliver an empty bin and pick up a full bin once a week. A solvent recycling service, such as Safety-Kleen, will likely deliver fresh solvent and pick up spent solvent and other materials once a week as well.

Analysis - Congestion

Because Bottle Rock Road has modest use, even at peak morning and evening rush hours, and because the peak total daily vehicle and truck trips are very low, there is no realistic likelihood of congestion resulting from BRPP operations. Existing daily trips to and from BRPP are currently at similar levels as authorized by the Final Decision. No traffic problems have been noted.

Analysis - Safety

The access to and from High Valley Road to Bottle Rock Road has good visibility and the turn-off space before the access gate avoids situations where vehicles or truck might block driving lanes on Bottle Rock Road while waiting for the front access gate to be opened.

Existing road conditions on High Valley Road are excellent and will be maintained that way. The posted 15 miles-per-hour speed limit helps minimize the likelihood of accidents. High Valley Road has excellent visibility in the vicinity of the private residences helping to reduce the risk of collisions with individual or there vehicles in that area. Use of normal prudent driving practices consistent with these conditions will minimize the risk of traffic congestions and accidents.

Analysis- Parking

BRPP was permitted and designed with sufficient parking to manage operations and maintenance. During peak periods significant clear paved areas exist around the plant, for overflow parking as needed. The operation of BRPP will not cause parking impacts on surrounding areas such as the private residences at the foot of High Valley Road or along Bottle Rock Road itself.

PETITION TO AMEND FINAL DECISION TO RE-FIRE PLANT
Bottle Rock Power Plant (79-AFC-4)
Exhibit G- Traffic and Transportation Analysis

Conclusion

Analysis of existing and proposed activities shows no likelihood of significant adverse impacts to traffic or transportation. The Final Decision permits and allows nearly all existing activities. The physical changes at the plant and the operational changes will not create adverse effects.

EXHIBIT H

**PETITION TO AMEND FINAL DECISION TO RE-FIRE PLANT
BOTTLE ROCK POWER PLANT
79-AFC-4**

EXHIBIT H

CULTURAL RESOURCES ANALYSIS

This analysis evaluates the effect the renewal of operations at BRPP will have on cultural resources if operated pursuant to the Final Decision modified by this Petition to Amend. Renewed operation of BRPP will not have significant or adverse effects on cultural resources; in part, because changes to the operation of BRPP are minimal. Past operation of BRPP presented no significant impacts to cultural resources and mitigation measures were put in place to avoid any future impacts.

Site Conditions and Resources

The records available and provided to BRP through the transfer of ownership from DWR revealed that archaeological research conducted during the NOI process identified five cultural resources sites on the leasehold. The sites are identified as CA-LAK-605, 607, 608, 609, and 610. Three of these five identified sites met the criteria for inclusion in the National Register of Historic Places. During original construction and development of the facility, great care was taken to preserve the integrity of the identified cultural sites and conditions set forth in the Final Decision and subsequent orders required monitoring and mitigation measures related thereto.

While BRP has minimal information regarding these sites, it has determined that DWR conducted a study of the sites and determined discovered specimens were mostly waste flakes. The remaining specimens were classified as artifacts. The significance of sites CA-LAK-609 and CA-LAK-610 rests in their past utilization as a staging area for procurement of vegetal resources and a small base camp from which local resources were collected. Recommendations were made that both archaeological sites be avoided by project construction and, as such, COCs 4-1 through 4-5 were implemented to protect these culturally sensitive areas.

Potential Impacts Due to Renewed Operations

While the constructed facility and related appurtenants will require repairs and maintenance, no impacts to cultural resources are expected. As previously discussed, the footprint of the existing facility will not be expanded. Vegetation removal, earth-moving activities, and excavation occurred during original construction of the facility. However, as discussed in Section III.D.2.e.(2) above, a new pipeline is required to enhance operation of the secondary hydrogen sulfide abatement system. This new pipeline will require minimal trenching (approximately 20 to 25 feet) under the paved yard area. The soil there is comprised of native soil, which was originally many feet below the surface of the foot of the cut and fill area where the plant is located. The fill was excavated during original construction activities and placed where needed. Because this area represents previously disturbed soil, which was also monitored by an

PETITION TO AMEND FINAL DECISION TO RE-FIRE PLANT
Bottle Rock Power Plant (79-AFC-4)
Exhibit H – Culture Resources Analysis

archaeologist pursuant to COC 4-2, BRP has determined that the trenching activities related to this pipeline will have no impacts upon cultural resources. In addition, other repairs and maintenance activities do not require soil disturbances. Therefore, it is reasonable to determine no impacts to these culturally sensitive areas will occur during re-start activities or continued operations.

Conditions of Certification

Suspension of plant operations and subsequent CEC orders, suspended four of the five COCs related to these sites. Currently, the only remaining, active condition, (4-5) ensures that the existing fence surrounding CA-LAK-609 is maintained during the life of the project.

As no new construction activities will occur at the site, BRP has determined these conditions to be sufficient to protect the resources identified and, therefore, wishes to activate all suspended COCs related to Cultural Resources.

SUSPENDED CONDITIONS:

Condition 4-1. DWR 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 shall provide the CEC with a copy of the archaeological recovery program plan.

Condition 4-2. DWR shall arrange for the presence of a qualified archaeologist to advise DWR's Construction Department of the significance of any cultural resource which may be discovered during the stripping of vegetation and top soil from the plant sit and related facilities. The archaeologist shall conform to on-site safety procedures, as directed by the Resident Engineer.

Verification: The presence of archaeologist shall be noted in the monthly Construction Progress Report provided to the CEC.

Condition 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 shall promptly notify the CEC of the resource discovery and work stoppage. Representatives of DWR, the CEC, and the Anthropology Lab at Sonoma State University shall meet with DWR'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.

PETITION TO AMEND FINAL DECISION TO RE-FIRE PLANT
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Exhibit H – Culture Resources Analysis

Verification: DWR shall notify the CEC within one working day of the resource discovery and the work stoppage.

Condition 4-4. DWR 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 shall provide the CEC with a statement verifying compliance.

ACTIVE CONDITION:

Condition 4-5. DWR 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.

Conclusion

Analysis of existing and proposed activities shows no likelihood of significant adverse impacts to cultural resources. The Cultural Resources COCs should be activated.

EXHIBIT I

**PETITION TO AMEND FINAL DECISION TO RE-FIRE PLANT
BOTTLE ROCK POWER PLANT
79-AFC-4**

EXHIBIT I

NOISE ANALYSIS

I. INTRODUCTION AND SUMMARY

This analysis considers and evaluates the effect that the operation of BRPP will have on noise conditions if operated pursuant to the Final Decision modified per this Petition to Amend. The Petition to Amend the Final Decision could affect noise resources several ways. The effects and issues presented by the Petition can be organized as three categories or types.

A. Effects Created by Changes to Project Description

First, to the extent that the Petition changes the project description, it could change the character, magnitude, or timing of noise sources at BRPP and, in doing so, change the actual effects of the plant. Fortunately, the changes that affect noise and sound are positive in character and, thus, project changes do not present adverse effects issues.

B. Effects Created by Comparative Changes in Operation Character

Secondly, commencing operation at BRPP, again, could create a contrast with the recent suspended operations period of the plant. Thus, nearby residents might notice a difference in the character, magnitude, and frequency of noise sources at the plant, even though those noise sources would be pre-existing, evaluated, and approved effects of BRPP. BRP believes that the operation of BRPP will not create disturbances or other problems that would make this a more noticeable issue. To help avoid noise-related issues, BRP proposes to operate by using reasonable noise complaint procedures that typify current decisions issued by the CEC on Applications for Certification.

C. Issues Presented by Changes in the Law

Finally, there could be issues regarding whether the pre-existing plant complies with current noise ordinances, if, in fact, those ordinances have changes since the Final Decision was approved. BRP proposes to avoid legal concerns and complications inherent in this issue by considering and accepting the obligation that the operation of BRPP in the future will comply with the current noise ordinance applicable to BRPP

II. LOCATION, SETTING, EXISTING CONDITIONS

BRPP is located on hillside slope cut in a mountainous, rural setting typical for geothermal plants in the region. There are several residences within a mile or so of the plant. BRPP is engineered with massive, thick concrete walls and ceiling. The walls are generally three feet thick. This design is one reason why there are few noise issues associated with the main equipment at the plant. Most homes in the area of BRPP are located along High Valley Road, some close to the road, most offset from the road. Several residences are located along Bottle Rock Road that provides access to High Valley Road and to the BRPP and steam field. High Valley Road has a low level of routine traffic from residents and plant workers which create noise sources that peak in the daytime, but those traffic noise sources do not persist during the night time.

III. POWER PLANT DESIGN AND OPERATION AND CHANGES PROPOSED

The majority of BRPP, which includes all the major steam plant equipment, is located inside the thick concrete plant building. With three foot thick walls, this building significantly attenuates plant noise. Sources of noise outside the building include the steam ejectors, the Emergency Steam Stacking device, and the vehicles and trucks associated with operations on site as well as transportation of materials and personnel.

A. Steam Jet Ejectors

The original plant design relied upon steam driven gas ejectors to draw a vacuum on the condenser and remove non-condensable gases. The steam used for these ejectors, was vented above the roof of the turbine building and was one distinguishable point source for emissions at the plant during start-up operations. Moreover, the ejectors are an extreme source of noise, as well, when they operate. As discussed in this Petition, BRP proposes to install electric motor driven vacuum pumps to replace the normal operation of the steam jet ejectors. One key benefit provided by the pumps is the dramatic reduction of noise compared to the use of the ejectors. The steam ejectors will remain to provide redundancy and would be used only as an emergency back-up system in lieu of the pumps.

B. Emergency Steam Stacking Device

The emergency steam stacking device, another original design source of noise, diverted steam from the plant when a sudden plant trip or sudden shutdown occurred. The steam stacking device, during initial operations until suspended status, was probably used more often than would be expected for an "emergency" device. With the Petition, BRP intends never to routinely use the steam stacking device. BRP will strive to avoid operation of the plant that was typical of that operational era when operation of the plant involved frequent plant trips. BRP commits to reducing and minimizing the source of noise produced when using the steam stacking device.

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Exhibit I - Noise Analysis

C. Major Plant Components

The vast majority of the equipment that comprises the plant is contained within the thick concrete building. These walls attenuate (reduce) noise levels significantly. Of the entry penetrations into and out of the main building, the large maintenance doors likely present the greatest opportunity for sound energy to escape. BRP, however, commits to keeping these doors closed during nighttime operation except when they specifically must be opened for maintenance or access.

D. Vehicular Noise

Noise from vehicles and trucks accessing the plant on High Valley Road could be discernable by residents along the access road. High Valley Road, however, has a posted 15 mile-per-hour speed limit which greatly reduces vehicular noise. Additionally, the vast majority of traffic to and from the plant will occur during standard business hours and BRP will commit to scheduling truck deliveries and pickups during standard business hours. Finally, the incremental increase in traffic caused by renewed operations of BRPP will be minimal.

E. Other Sources of Noise

There is some equipment located outside of the main building. The original design of the plant, however, places most of that equipment behind the main building but within the leveled plant yard. Thus, the main building provides a shield and deflector for noise from equipment such as the cooling tower and the external hydrogen sulfide abatement equipment. Further, the Petition declares that BRP will not add any new equipment outside of the building that could be a significant source of noise. Equipment, such as the vacuum pumps, will significantly reduce noise during normal plant operations.

IV. EXISTING CONDITIONS OF CERTIFICATION

The Final Decision contained requirements regarding noise that were reduced to three conditions when the Compliance Report was re-written in 1983. The suspension order kept only COC 16-1 active and suspended 16-2 and 16-3.

A. Noise Limits, COC 16-1

COC 16-1 requires the project owner to comply with 55 and 45 dBA limits beyond the property lines and to respond to noise complaints. The current noise ordinance of Lake County, Lake County Zoning Ordinance, Section 21-41.11 has more detailed requirements, but the 55 and 45 dBA limits still remain. Thus, COC 16-1 is adequate and also complies with the current County requirements.

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Bottle Rock Power Plant (79-AFC-4)
Exhibit I - Noise Analysis

B. Noise Surveys, COC 16-2 and COC 16-3

COCs 16-2 and 16-3 require the project owner to conduct a noise survey within 90 days of operation at rated generation capacity (16-3) and to report the results (16-3). These conditions were suspended. BRP proposes to activate these conditions and also proposes some language changes to fit the conditions to the operating parameters of the plant when it is re-fired. Thus, BRP commits to conducting a post re-firing noise survey to verify that the plant still complies with its noise requirements.

V. ANALYSIS OF POTENTIAL EFFECTS OF RE-FIRING PLANT WITH PROPOSED CHANGES

The Petition proposes to re-fire BRPP with some changes to its operation and project description. The changes, however, are all positive or beneficial with regard to noise. The use of vacuum pumps instead of the steam jet ejectors will eliminate noise from steam expanding through the steam jet ejectors, as well as any noise related to the vent from the top of the turbine building, which will now be eliminated. Operationally, the project will emit less noise during the day and during the night. Transportation-related noise and some plant noise will be focused on day time hours. BRP will also conduct a new noise survey once the power plant is operating at 17 megawatts of capacity.

These changes will ensure that operation of BRPP will produce less noise than it did when it previously operated. The original decision to permit BRPP will otherwise remain unchanged and, hence, there is no reason not to approve the changes outlined in the Petition that allows BRPP to re-fire to operate.

EXHIBIT J

**PETITION TO AMEND FINAL DECISION TO RE-FIRE PLANT
BOTTLE ROCK POWER PLANT
79-AFC-4**

EXHIBIT J

POTENTIALLY AFFECTED PROPERTY OWNERS

LAST NAME	FIRST NAME(S)	MAILING ADDRESS
Barrett	Bryan and Melanie	P.O. Box 1064, Orofino ID 83544
Barrett	Tom and Sue	1011 Hi Hill Lane, Princeton ID 83857
Bennett	Dan and Kelli	P.O. Box 181, Cobb CA 95426
Baumeister	Cordelynn	3733 Canon Ave., Oakland CA 94602
Binkley	Pete and Monti	P.O. Box 1249, Cobb CA 95426
Border	Jeff and Stacy	19032 Carlton Ave, Castro Valley 94546
Boriack	Chris	2115 Citadel Way, Lodi CA 95242
Boriack	Vera	318 N. Lassen Dr., Lodi CA 95242
Carlisi	John	P.O. Box 989, Cobb CA 95426
Clements	Dan and Pat	2870 Lowell Ave., Richmond CA 94809
Coleman	David	3733 Canon Ave., Oakland CA 94602
Coleman	Frank	40455 Carrigan Rd., Murrieta, CA 92562
Coleman	Ken	P.O. Box 905 Murrieta, CA 92562
Coleman	Larry and Willa	226 Sherman Dr., Red Bluff CA 96080
Coleman	Victor	2145 W. Kettleman Lane, Lodi CA 95242
Daley	Ron and Alice	P.O. Box 1139, Cobb CA 95426
Fidge	Ron	P.O. Box 102, Cobb CA 95426
Fletcher	Kelly and Gerri	P.O. Box 1272, Cobb CA 95426
Francisco	Marjorie	5005 Melvin Dr., Carmichael CA 95608
Fung	Randy and Linda	P.O. Box 332, Cobb CA 95426
Fields	Jan	P.O. Box 53, Cobb CA 95426

PETITION TO AMEND FINAL DECISION TO RE-FIRE PLANT

Bottle Rock Power Plant (79-AFC-4)

Exhibit J – Potentially Affected Property Owners

LAST NAME	FIRST NAME(S)	MAILING ADDRESS
Hanson	Brad	P.O. Box 331, Cobb CA 95426
Herlihy	Jim	P.O. Box 731, Cobb CA 95426
Hess	Hamilton and Peggy	P.O. Box 131, Cobb CA 95426
Hill	Dianne	256 Autumn Eve St., Henderson, NV 89074
Jadiker	Bill and Mary	P.O. Box 28, Cobb CA 95426
Jensen	Dennis	P.O. Box 1033, Cobb CA 95426
Mahnke	Chris and Carol	P.O. Box 1, Cobb CA 95426
Matzinger	Jim and Sharon	P.O. Box 47, Cobb CA 95426
Nyberg	Polly	P.O. Box 989, Cobb CA 95426
Ostrander	Mike	639 35th St., Richmond CA 94805
Ostrander	Gary and Virginia	639 35th St., Richmond CA 94805
Patrick	Chuck and Carol	P.O. Box 1261, Cobb CA 95426
Raymond	Connie	1029 Gloria Dr., Santa Rosa CA 95407
Rhine	Milt	P.O. Box 987, Cobb CA 95426
Stewart	Clay	P.O. Box 1031, Cobb CA 95426
Suess	Ron and Jane	1924 San Salvador Dr., Santa Rosa CA 95403
Trader	Ron and Nancy	P.O. Box 475, Cobb CA 95426
Turner	Pattee	548 Alvarado St., Brisbane CA 94045
Turner	Scotty	P.O. Box 53, Cobb CA 95426
Wilcox	John	1593A 3rd Ave., Walnut Creek CA 94596
Wilcox	Bill and Darlene	1593A 3rd Ave., Walnut Creek CA 94596