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JOINTLY PROPOSED PG&E AND CEC STAFF COMPLIANCE PLAN

FOR

PG&E GEYSERS UNIT 17

(79-AFC-1)

DECEMBER 1982

(Revised March 1983)

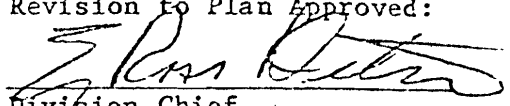
California Energy Commission

Revision No. 1

Date:

3/25/83

Revision to Plan Approved:


Division Chief

On December 16, 1982, the California Energy Commission approved PGandE's petition to modify Relevant Finding 49 which required a continuous emission monitoring device for H₂S. Therefore, Relevant Finding 49 in the Decision and on page 10 of the Compliance Plan should be deleted and replaced with the following:

49. Since the concentration of H₂S in the off gas stream is in excess of 1,000 ppm, the following conditions are required in order to ensure compliance with NSCAPCD Rule 455(a):

a. The H₂S control system shall be operated to preclude the release of untreated off gases to the atmosphere or the cooling tower during normal power plant operation, plant start-up, and plant shutdown;

b. Until such time as a continuous emission compliance monitor (CEM) is installed, PGandE shall install and operate a computer based alarm system (CBAS) as follows:

1. PGandE shall install and have operational, commencing as of unit start-up, a computer based system which monitors the following critical equipment on or about the Stretford facility and the secondary abatement:

(a) Position of the Stretford bypass valve,

(b) Circulation of the Stretford chemicals,

(c) Operation of oxidizer blowers, and

(d) Chemical feed pumps of secondary system.

2. The CBAS shall be operated during power plant operations, power plant start-up, and power plant shutting down procedures and shall detect alarm and log failures or operation of the above equipment or systems which could lead to a significant loss of abatement. Each time this CBAS system indicates a malfunction or other change in equipment operations, PGandE shall immediately commence: (1) an investigation to determine the cause of the alarm system tripping, (2) manual H₂S concentration tests of the Stretford exhaust, and (3) any necessary corrective actions. All such investigation, testing, and corrective action shall be logged by the plant operator. The computer system shall be logged, along with the actions taken. For purposes of this interim requirement, the Air Pollution Control Officer deems this system a monitoring system under District Rule 540.

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3. PGandE plant personnel shall inspect the operating Stretford and secondary abatement facilities no less than once per shift, checking for proper operation. Stretford solution chemistry and off gas H_2S concentration will be checked weekly when the system is in operation.
 4. Computer system alarm logs and operator logs shall be prepared and maintained, recording all normal checks, abnormal or alarm conditions, responses, and corrective actions, and shall be available for inspection on site upon request.
 5. Quarterly reports on the performance of the CBAS shall be submitted in writing to the Air Pollution Control Officer.
- c. Until such time that a continuous emission monitoring system is installed or in the event that the Control Officer determines upon PGandE's completion of the program requirements of subsection "e" below that appropriate continuous emissions monitors are not available, PGandE shall conduct source testing no less than once every thirty (30) operating days to ensure compliance with Determination of Compliance (DOC) conditions. The testing procedures to determine compliance shall be submitted November 30, 1982, for District approval. A log of such testing shall be maintained and made available to the district upon request.
- d. A summary of CBAS or monitoring data and source test data shall be forwarded to the District every thirty days. This summary is subject to the requirements of Rule 455(c). The Air Pollution Control Officer may consider reducing the frequency of this required reporting if he finds it to be warranted based on his review of monitoring data and operational records covering at least one calendar year.
- e. On or before January 14, 1983, PGandE shall submit to the District for approval a proposal that outlines an "in-house" program which PGandE shall implement, upon receiving District approval, to develop appropriate continuous compliance H_2S monitoring devices to meet the requirements below. Upon approval, the program requirements shall become part of the terms and conditions of the DOC and the AFC. Within 30 days of receipt of the proposal, the Air Pollution Control Officer shall approve it or shall notify PGandE of deficiencies in the proposal which shall be corrected within 30 days after notice and the proposal resubmitted for Air Pollution Control Officer action:
1. H_2S emissions shall be monitored by measuring the following parameters: (a) total process mass or volume flow rates, and (b) H_2S concentrations within those proposed streams.
 2. The following process streams are to be sampled: (a) the treated gas outlet of the Stretford Unit; (b) the main condenser condensate prior to any secondary abatement chemical

injection or the condensate upstream of the cooling tower after chemical injection; and (c) The cooling tower. It is allowed that item "c" can serve in lieu of "a" and "b;" therefore, PGandE can pursue item "c" first. However, if "c" proves infeasible, then items "a" and "b" would have to be pursued as a means of overall unit compliance monitoring.

3. As a development goal the H₂S monitoring devices should strive for a relative accuracy of ± 10 of full scale (as compared to a standard reference method or reference analysis acceptable to the District), an average weekly calibration drift of ± 10 percent (assumes weekly calibrations averaged over a 30 day period), and provide measurements at least every 15 minutes. Monthly data capture should be 80 percent or better of the operational hours, and the monitor should not require more than 16 hours of maintenance per month. The Air Pollution Control Officer may for good cause change the specifications above.
 4. Flow rate measuring devices must have accuracies of ± 15 percent at 40 percent to 120 percent of total flow rate and calibrations must be performed as necessary and at least quarterly. The Air Pollution Control Officer may for good cause change the specifications above.
 5. Quarterly written progress reports on the operation of the development program shall be submitted to the Air Pollution Control Officer. All monitoring records and calibration information must be made readily accessible to district staff upon request.
 6. The proposed program shall include a milestone schedule for CEM development.
 7. The development and testing program must be completed within two years of its approval by the Air Pollution Control Officer.
- f. Participation by PGandE in an approved cooperative continuous emission monitor development program may be deemed acceptable in place of Finding 49e above, provided the goals and requirements set forth are the same as those identified in 49e.1 through 49e.4, and a proposed program is submitted to the Air Pollution Control Officer on or before January 14, 1983. Within 30 days of receipt of a proposal, the Air Pollution Control Officer shall approve the program or shall notify PGandE of deficiencies which must be corrected prior to approval. Such a cooperative program must obtain NSCAPCD approval prior to being implemented. If PGandE elects to pursue a cooperative program pursuant to this provision and complies with the deadline to submit an appropriate program, the time for program completion may be extended by the Air Pollution Control Officer by up to 60 days if made necessary by the time required for the preparation of final documents by the program participants.

- g. Within 60 days after completion of the program described in 49.e or 49.f, PGandE shall submit a final report to the district on the availability of acceptable continuous monitors which satisfy criteria 49.e.1 through 49.e.4. Within 30 days of receipt of the report, the Control Officer shall determine whether or not such monitors are available and shall be installed at Unit 17.
- h. Any dispute relative to this Finding 49 may be heard before the Hearing Board of the NSCAPCD.

PGandE GEYSERS UNIT 17 COMPLIANCE PLAN

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PGandE GEYSERS UNIT 17 COMPLIANCE PLAN

Part I: INTRODUCTION AND GENERAL PROVISIONS

Section 25532 of the Public Resources Code provides that the California Energy Commission (CEC) shall establish a monitoring system to assure that any facility certified is constructed and operated in compliance with air and water quality, public health and safety, and other applicable regulations, guidelines, and conditions adopted or established by the Commission or specified in the written decision on the application. The following plan is formulated to satisfy that directive for the PGandE Geysers Unit 17.

The Commission's jurisdiction extends only to the power plant and related facilities, including the transmission tapline to the point of interconnection with the power grid. The Commission's jurisdiction does not extend to the steam-gathering or reinjection system, the well pads and access roads thereto, or the steam wells.

Significant features of the plan include:

- o Utilization of delegate agencies, where possible, to monitor specific elements of the compliance plan;
- o Compliance verification of each condition by a qualified professional;
- o Periodic compliance reports to be filed by PGandE;
- o An annual compliance report to be filed by PGandE; and
- o A dispute resolution procedure.

Delegate Agencies

The Warren-Alquist Act provides the CEC with exclusive siting authority for thermal power plants and related facilities. To the extent permitted by law, the CEC will delegate authority for compliance verification to various state and local agencies who have expertise in subject areas where specific requirements have been established as a condition of site certification. In the event that a delegate agency is unwilling or unable to participate in this program, the CEC will establish an alternative method of verification.

Verification of Compliance

Verification of compliance with the terms and conditions of certification shall be accomplished either by periodic compliance reports filed by PGandE, or by appropriate letters from delegate agencies verifying compliance, or by auditing project records, or by inspecting the power plant site and related facilities.

Periodic Compliance Reports

Information required by the compliance plan to be submitted by PGandE to the CEC shall be filed as periodic compliance reports. These reports shall be filed at least once each quarter, numbered consecutively, and contain as a minimum:

- o The current project construction or operating status;
- o A listing of compliance plan requirements scheduled during the reporting period, with a corresponding description of the status of the requirement, i.e., completed, not started, or in progress;

- o For those compliance plan requirements which PGandE had expected to satisfy during the reporting period but which were not satisfied, include a statement of how and when PGandE intends to satisfy the requirement;
- o A listing of any changes to the compliance plan which has resulted from negotiations between PGandE and the CEC or its delegate agencies; and
- o Notification of any filings made with other governmental agencies having permitting authority over any aspect of the project.

Annual Compliance Report

PGandE will submit an annual compliance report to the CEC which will contain the information required by the compliance plan to be filed on an annual basis. An explanation will be provided for any missing information, including an estimate as to when the information will be provided. The annual report shall summarize the primary compliance activities during the previous year.

Compliance Auditor

The CEC shall designate a Compliance Auditor for the PGandE Geysers Unit 17 power plant. The auditor will be responsible for implementing the approved compliance plan after certification, for maintaining the compliance record files, and for initiating the dispute resolution procedure.

All correspondence pertaining to PGandE Geysers Unit 17 compliance matters should be addressed as follows:

Compliance Auditor (79-AFC-1C)
California Energy Commission (MS-2000)
1516 Ninth Street
Sacramento, CA 95814

Noncompliance

Any person or agency may file a complaint alleging noncompliance with the conditions of certification. Such a complaint will be subject to review by the CEC and can result in proceedings pursuant to Title 20, California Administrative Code Article 4, Sections 1230, et seq.

Enforcement

The Commission's legal authority to impose legal sanctions for noncompliance is specified in Title 20, CAC Sections 1230 et seq. and PRC Sections 25531(c), 25532, 25534, and 25900 et seq. Moreover, delegate agencies, as set forth in this document, are authorized to take any action allowed by law in accordance with the delegate agencies' statutory authority, regulations, and administrative procedures to ensure compliance with the terms and conditions of certification and applicable laws, ordinances, and standards.

CEC may exercise all administrative measures authorized by applicable law in the event of noncompliance.

Compliance Record

PGandE will maintain for the life of the project files of all "as-built" documents referenced in this report. Staff of the CEC and delegate agencies will, upon reasonable notification, be given access to the files.

The CEC will maintain as a public record:

- o All attestments to the fulfillment of legal requirements;
- o All periodic and annual compliance reports filed by PGandE;

- o All documents relative to complaints of noncompliance filed with the CEC;
and
- o All documents relative to this compliance plan brought before the
Commission.

Confidential Information

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

Dispute Resolution Procedure

The following mediation procedure is designed to resolve informally, when possible, disputes concerning interpretation of compliance with the requirements of the PGandE Geysers Unit 17 Compliance Plan. Either PGandE, the CEC, or any other party may initiate this procedure when time is critical in resolving a problem or when the alleged noncompliance does not appear significant enough to warrant a more formal investigation and proceeding.

The procedure is not intended to be a substitute for or prerequisite to the more formal complaint and investigation procedure specified in Title 20, California Administrative Code Sections 1230 et seq. Nor may the procedure be used to change the terms and conditions of certification as approved by the California Energy Commission.

The procedure encourages all parties involved in a dispute to discuss the matter and to reach an agreement resolving the dispute. If a matter cannot be

resolved, then the matter must be referred to the Commission for consideration.

- o Request for Informal Investigation--Any individual, group, or agency may request the CEC to conduct an informal investigation of an alleged non-compliance with the CEC's terms and conditions of certification for the PGandE Geysers Unit 17. All requests for an informal investigation shall be made to the CEC Compliance Auditor by either telephone or letter.

Upon receipt of a request for investigation, the compliance auditor shall promptly notify PGandE by telephone and subsequently by letter of the allegation. All known and relevant information of the alleged noncompliance shall be provided to PGandE and to the CEC staff. PGandE shall promptly investigate the matter and within seven working days shall provide a written report of the results of the investigation as well as all corrective measures undertaken to the compliance auditor and the person requesting such investigation. If the exigencies of the noncompliance demand otherwise, the compliance auditor may request PGandE to provide an initial report within 48 hours by telephone, followed by a written report filed within 7 days.

- o Request for Informal Meeting--In the event that either the party requesting an investigation or the CEC staff is not satisfied with the PGandE report and investigation of the event, as well as the corrective measures undertaken, either may, by written request to the compliance auditor with a copy to PGandE, request a meeting with PGandE. Such request shall be made within 14 days of PGandE's filing of its written report as described above. Upon receipt of such a request, the compliance auditor shall:

1. Immediately schedule a meeting with the requesting party and PGandE to be held promptly at a mutually convenient time and place.
 2. Secure the attendance of appropriate CEC staff and staff of any other agency with general jurisdiction and expertise in the subject area of concern.
 3. Conduct such meeting in an informal and objective manner to encourage the voluntary settlement of any dispute in a manner which is fair and equitable to the interests of all parties.
 4. Promptly after the conclusion of such meeting, prepare a memorandum which fairly and accurately sets forth the positions of all parties and any conclusions reached and distribute copies to all attendees.
- o Request for Commission Hearing--If either PGandE, CEC staff, or the party requesting an investigation is not satisfied with the results of said informal meeting, such party may, within 10 working days, request in writing a hearing before the Committee of the Commission designated for the hearing of such matters. The Committee shall, upon receipt of a written request stating the basis of the dispute and the attempt at informal resolution thereof, grant a prompt hearing on the matter consistent with the requirements of noticing provisions and shall have authority to consider all relevant facts involved and make any appropriate orders consistent with its jurisdiction.
- o Appeal from Committee to Commission--Pursuant to 20 California Administration Code Section 1215, PGandE, CEC staff, or the party requesting an investigation may request review of any committee order or decision.

Part II: POWER PLANT COMPLIANCE PLAN

Section 1. AIR QUALITY

A. Applicable Laws, Ordinances, Standards, and Practices

- o Northern Sonoma County Air Pollution Control District (NSCAPCD) Rules and Regulations, including but not limited to 400 (a), 410 (a), 420 (d), 430, 455 (a) and (b), 220 and 230 (New Source Review), and 540 (upset/breakdown).
- o Clean Air Act and implementing federal regulations.
- o California Health and Safety Code and implementing state regulations.

B. Requirements

- 1-1. The NSCAPCD shall perform all duties and functions normally conducted by the APCD, including authority to issue a Permit to Operate, collect the permit fees, levy fines, order correction of operational or mechanical procedures or functions, and perform compliance tests. The established NSCAPCD appeal procedures shall apply for all contested NSCAPCD actions.

Verification: PGandE shall summarize in a periodic compliance report any interactions with the NSCAPCD concerning Unit 17. PGandE shall immediately inform the CEC and ARB in writing of any formal appeals filed with the NSCAPCD.

- 1-2. PGandE shall comply with the requirements specified in the Air Quality Findings, and Conclusions, contained in the Final Decision

for Geysers Unit 17, dated September 20, 1979, specifically Findings, 3, 4, 13 - 13e, 26a, 49 - 49c, 52 - 52a, and 53, which are listed below.

Relevant Findings

- "3. At the time Unit 17 is scheduled to begin operation, the hydrogen sulfide (H_2S) emissions limitation during normal power plant operation is expected to be 100 grams/gross MWhr (26.4 lb/hr) pursuant to Northern Sonoma County Air Pollution Control District (NSCAPCD) Rule 455(b).
- 4. Beginning January 1, 1985, Unit 17 is expected to be limited by Rule 455(b) to H_2S emissions of 50 grams/gross MWhr (13.2 lb/hr), subject to review by the NSCAPCD before January 1, 1984.
- 13. Since the Applicant was unable to provide sufficient data from Geysers Unit 15 on the partitioning efficiency of the surface condenser to allow the Commission to make a finding that Unit 17 will comply with NSCAPCD Rule 455(b), such a finding can be based on preliminary process design criteria and bench scale test data on a hydrogen peroxide/catalyst condensate treatment system which is expected to be capable of achieving the abatement needed to comply with the 100 grams/gross MWh limitation.
- 13a. The Applicant has agreed to provide the NSCAPCD and the Commission all testing data on the partitioning efficiency of the surface condenser at Unit 17. This data shall be submitted as soon as possible.
- 13b. The Applicant has provided preliminary process design criteria for an H_2O_2 secondary treatment system capable of treating 35 percent of the total H_2S in the incoming steam.
- 13c. The Applicant has submitted a detailed description of its intended peroxide and air oxidation testing program at Unit 15 and also provided the current secondary abatement test program schedule. The Applicant shall submit to the NSCAPCD, the ARB, and the Commission staff quarterly reports providing the results of the Abatement Testing Program described in the document entitled "Composite Schedule of The Secondary Abatement." The report shall include updates of the testing schedule made by the Applicant.

- 13d. Although Unit 17 may be licensed on the basis of a modified hydrogen peroxide/catalyst system, the Applicant may use other means to comply with Rule 455(b). The Applicant will submit, no later than two years prior to the scheduled commercial operation date of Unit 17, the conceptual design of the Secondary Abatement System, including data demonstrating that compliance with Rule 455(b) of the NSCAPCD can be achieved. Such data shall be submitted to the staff, the ARB, and the NSCAPCD. The Applicant may, not sooner than 30 days after submission of the data, proceed with construction of the proposed system unless otherwise notified by the Executive Director within 30 days. In this event, the Commission shall hold a hearing within 10 days and issue a decision within 20 days of the hearing.
- 13e. PGandE approved-for-construction drawings of the Secondary Abatement System shall be submitted to the staff, the ARB, and NSCAPCD prior to the start of construction of the Secondary Abatement System. Applicant may proceed with the construction of this system unless otherwise notified by the Executive Director within 30 days. In the event of this notification, the Commission shall conduct a hearing within 10 days and issue a decision within 20 days of the hearing.
- 26a. In the event of any unscheduled plant outage at Unit 17 once it is operational, the Applicant shall immediately notify the steam supplier for Unit 17.
49. Applicant shall install and operate on Unit 17 a source testing method equivalent to that eventually used on Geysers Unit 15.

Since the concentration of H_2S in the off-gas stream is in excess of 1,000 ppm, the following conditions are required in order to ensure compliance with NSCAPCD Rule 455(a):

- a. The H_2S control system shall be operated to preclude the release of untreated off gases to the atmosphere or the cooling tower during normal power plant operation, plant start-up, and plant shut-down;
- b. Applicant shall install and operate a continuous H_2S monitoring device in the off-gas vent to the atmosphere and the off-gas vent to the cooling tower. The gas analyzer shall have an accuracy of +10 percent of full scale accuracy for the 1,000 - 5,000 ppm range. The flowmeter

*Amended
7/25/83*

shall have an accuracy of +10 percent of full scale for the range of 500 - 2,000 cfm range. Data shall be logged on a strip chart or other similar device which will be available for inspection on site upon request.

- c. By September 1, 1980, Applicant shall determine the feasibility of a continuous condensate monitoring system for H_2S , including estimated costs, which is capable of +20 percent accuracy and which required less than 10 hours per month maintenance. The Applicant shall also provide test data substantiating the proper system to ensure compliance with Rule 455. The Applicant shall submit quarterly reports to the APCD and the CEC on its efforts toward these determinations.

52. Applicant shall operate an ambient H_2S monitoring station at the location of SRI #4 for the first three years of plant operation unless an alternative method of ambient monitoring mutually agreed upon by the Applicant, the CEC, and the Northern Sonoma County AOC is implemented, or monitoring at SRI #4 is performed by another party.

52a. The Applicant shall, at a location which has been approved by the APCD, undertake ambient monitoring for TSP and sulfates every six (6) days for a 24 hour period. The Applicant shall commence such monitoring no later than three (3) months prior to commercial operation and should continue until six (6) months after commercial operation.

53. The Applicant has submitted information required for a Permit to Operate by NSCAPCD Rules to the NSCAPCD and the Commission. The Applicant, within 60 days of commercial operation, agrees to demonstrate that the applicable emissions limitations of NSCAPCD rules are being maintained during normal operations. Failure to completely and accurately make such demonstrations may be cause for Commission action to shut-down or curtail the operation of Unit 17 until remedial action can be taken after proper notice and public hearing."

"For the purposes of these Findings and Conclusions, "normal" operation is defined as the operation of the facility with all abatement equipment installed and operating to specifications enumerated herein."

Verification: PGandE shall annually obtain a letter from the NSCAPCD verifying PGandE's compliance with the conditions of the Findings and Conclusions on Air Quality. PGandE shall provide the CEC with a copy of this letter in the annual compliance report. In addition, PGandE shall provide the CEC with a copy of all quarterly reports and testing/monitoring summary reports submitted to the NSCAPCD concerning Unit 17.

- 1-3. PGandE shall obtain NSCAPCD and CEC written approval before using any equipment other than the Hydrogen Peroxide/catalyst and Stretford/surface condenser system as approved in the CEC Decision to control H₂S emissions.

Verification: If requested, such drawings shall be submitted by PGandE to the CEC at least 30 days prior to commencing construction of system.

- 1-4. PGandE shall apply for a Permit to Operate in accordance with NSCAPCD rules and regulations.

Verification: PGandE shall submit a copy of the application for a Permit to Operate to the CEC within 90 days of submittal to NSCAPCD. PGandE shall submit a copy of the Permit to Operate to the CEC within 30 days of its receipt from the NSCAPCD.

Section 2. PUBLIC HEALTH

A. Applicable Laws, Ordinances, Standards, and Practices

- o Health and Safety Code Section 25607.
- o Title 17, California Administrative Code, 30355.
- o Public Resources Code Section 25532.

B. Requirements

2-1. PGandE shall conduct quarterly sampling and analysis of radon-222 concentrations in noncondensable radon-222 gases in accordance with the most recent California Department of Health Services, Radiologic Health Service (CDHS/RHS) requirements for monitoring and reporting on radon-222 at the time of reporting. The radon-222 steam monitoring program will be conducted for at least the first three years of commercial operation.

If monitoring results indicate that the radon-222 release from Unit 17 and the overall radon-222 release from the geothermal power plant units at The Geysers are well within applicable standards, the monitoring program may be modified, reduced in scope, or eliminated, provided PGandE obtains the permission of CDHS/RHS. As new information and techniques become available, with concurrence of the utility and CDHS/RHS, changes may be made to the program.

Verification: PGandE shall provide annual reports to the CDHS/RHS which will comply in format and content with the most recent CDHS/RHS reporting requirements.

- 2-2. If the radon-222 concentration exceeds 3.0 pCi/liter in the cooling tower exhaust, PGandE must inform the CDHS/RHS with an advisory report.

Verification: PGandE shall provide a written report to CDHS/RHS of sample results within 30 days of confirming levels in excess of 3.0 pCi/liter radon-222 in the cooling tower exhaust.

- 2-3. If the radon-222 concentrations exceed 6.0 pCi/liter in the cooling tower exhaust, PGandE shall notify the CDHS/RHS within 24 hours of confirmation of the sample result.

Verification: PGandE shall notify CDHS/RHS within 24 hours of the confirmation of the sample.

- 2-4. PGandE shall submit to the CEC an ambient monitoring program for ammonia, mercury, and arsenic to be conducted during Unit 17 operation.

PGandE will initiate an ambient monitoring program or participate in a generic ambient monitoring program for any pollutant if plant emissions are great enough to cause significant ambient concentrations. Significant ambient concentrations would be 33 percent of any standard or 50 percent of any standard when the plant contribution is added to existing background. The CEC shall arrange meetings with PGandE, CARB, CDHS, APCO, and other interested parties for determining significant ambient and/or emission concentrations of mercury, arsenic, and ammonia (for which ambient standards have not been adopted).

The following tasks will be performed prior to making the determination of significant ambient concentrations:

- a. PGandE will consider the emissions of all its present and currently planned geothermal power plants and predict maximum ground level impacts in Cobb Valley.
- b. PGandE will evaluate existing baseline concentrations of mercury, arsenic, and ammonia in ambient air in the vicinity of The Geysers power plant. This evaluation for mercury and arsenic will include:

- (1) Review of previous ambient monitoring results;
- (2) Analysis of several of the most recent hi-vol samples collected in The Geysers area; and
- (3) Conduct of vapor phase ambient monitoring at locations representative of population exposure. Final details will be agreed upon by the Applicant and CEC staff. Monitoring will be completed not later than 120 days prior to commencement of Unit 17 operation.

This evaluation for ammonia will include:

- (1) Review of previous ambient monitoring results;
- (2) Ambient ammonia concentrations will be extrapolated using the emissions ratio of hydrogen sulfide and ammonia, and ambient H₂S data. Spot field measurements will be used to confirm this methodology not later than 120 days prior to commencement of Unit 17 operation.

Verification: No later than 120 days prior to commercial operation, PGandE and CEC staff will agree upon an ambient monitoring program. Disputes will be resolved as described in Public Health General Finding 5 of the AFC Decision (p. 68).

2-5. PGandE shall perform a quarterly steam analysis for ammonia, arsenic, mercury, and boron. The quarterly steam analysis program shall commence within 45 days after commercial operation of Unit 17 and shall run for 1 year.

Continuation of the quarterly steam analysis beyond one year will be based on the following factors:

- (1) The variation of the concentration of each pollutant in the steam;
- (2) The rate of emission of each pollutant, and
- (3) The development or status of ambient or emission regulations for each pollutant.

PGandE and CEC agree that if pollutant concentrations do not vary more than 20 percent, and rates of emission are low, monitoring will be terminated for specific pollutants unless new regulations have been adopted requiring monitoring.

Verification: PGandE shall submit to the CEC and APCO quarterly steam reports and analysis within 30 days of the quarterly sampling.

Section 3. SOCIOECONOMICS/LAND USE/TRANSPORTATION

No compliance requirements have been identified.

Section 4. CULTURAL RESOURCES

A. Applicable Laws, Ordinances, Standards, and Practices

- o National Historic Preservation Act of 1966 and implementing federal regulations (16 USC 470 et seq. and 36 CFR 800 et seq.).
- o Public Resources Code Section 5097.9 et seq. Native American Historical, Cultural, and Sacred Sites.

B. Requirements

- 4-1. PGandE shall have a qualified archaeologist available during initial trenching or grading. The archaeologist shall conform to on-site safety procedures, as directed by the resident engineer.

Verification: If no archaeological artifacts are uncovered during trenching, filling, and grading, PGandE shall submit a letter to that effect to the CEC within 30 days.

- 4-2. If cultural resources are discovered during land alteration activities, operations in the potentially impacted area shall cease until the archaeologist evaluates the significance of the resources. PGandE shall collect samples of newly exposed chert and shall forward at least five samples from each significant body of chert to Sonoma State University, Department of Geology, for archiving. If construction activities threaten to impact a significant cultural resource, PGandE and the CEC staff shall meet within two working days to discuss PGandE's proposed mitigation measures. If agreement is reached, PGandE will take appropriate measures and resume construction. If agreement cannot be reached within one week following

PGandE's notice to the CEC, the matter shall be considered under the provisions of the Dispute Resolution Procedures. Construction activity in the potentially impacted area shall remain stopped pending resolution of the matter.

Verification: PGandE shall notify the Native American Heritage Commission and the CEC the next working day following the discovery of a significant cultural resource.

Section 5. BIOLOGICAL RESOURCES

A. Applicable Laws, Ordinances, Standards, and Practices

- o Warren-Alquist Act, Public Resources Code, § 25003 and 25523.
- o Federal Endangered Species Act of 1973 and implementing regulations.
- o Ecological Reserve Act of 1970 and implementing regulations, Fish and Game Code, § 1580 through 1584.
- o California Endangered Species Act of 1970, Fish and Game Code, § 2050 through 2055.
- o Fully Protected Species Act, Fish and Game Code, § 3511, 4700, 5000, 5050, and 5515.
- o Fish and Wildlife Protection and Conservation, Fish and Game Code, § 1600 et seq.
- o Notice of Streambed Alteration, Fish and Game Code, § 1601 through 1603.
- o California Environmental Quality Act, Public Resources Code, § 21000 et seq.

B. Requirements

- 5-1. PGandE has undertaken studies and has determined that no legally protected species will be significantly impacted.

Verification: The study results were submitted to the CEC.

5-2. PGandE shall implement the following specific mitigation measures to reduce impacts on biological resources and shall submit to the CEC and California Department of Fish and Game (CDFG) a statement of compliance with these measures when they are completed.

- o Erosion control measures specified in NOI p. 113 (IX.B.1).
- o Retention barrier surrounding Unit 17 to contain accidental condensate spills in NOI p. 119 (IX.E.).
- o The Wildlife Water Impoundment/Sedimentation Basin will be started during the initial phase of site preparation and completed as soon as possible.
- o Construction involving earth-moving at the site and related facilities will be suspended during continuous rainfall periods.
- o Construction involving earth-moving at the site and related facilities will not be planned for the months of December, January, and February. However, if weather conditions are favorable, PGandE will notify the Sonoma County Building Department and receive its concurrence prior to undertaking earth moving operations during November, December, January, February or March. In addition, PGandE will notify the CEC and CDFG of such activities.
- o Temporary erosion control measures will be used during the rainy season. Prior to initiating construction activities, the contractor will submit detailed plans to PGandE showing

proposed measures to be taken to control erosion. These plans will be available at the PGandE project office for review.

- o Revegetation to control erosion, including punched straw seed bed preparation, hydroseeding, slope stepping, and, if necessary, establishing an irrigation system, will be implemented for cut and fill slopes. Native species of shrubs and trees will be used whenever possible.

Verification: CEC and CDFG will review the statement of compliance submitted by PGandE. PGandE will allow for on-site inspections by CEC and CDFG staff, and as appropriate, or in the event of a complaint, CEC or CDFG staff will inspect the mitigation activity.

CEC, CDFG and members of the public may submit complaints regarding the implementation or satisfactory completion of these measures. CEC and CDFG will be notified of all complaints upon receipt. The public will be informed of any meetings between PGandE and CEC.

- 5-3. PGandE will submit descriptions of a Vegetation Stress Monitoring Study (VSMS) and plan to monitor wildlife mitigation measures to CEC by December 31, 1979. One year prior to start-up, PGandE will conduct a baseline data collection which will be adequate to assess the success of wildlife mitigation and monitoring measures.

PGandE will also submit a statement that the wildlife and aquatic baseline data collection has been completed and that the Vegetation Stress Monitoring Study has been initiated. The VSMS shall include:

Quantitative measurements of:

- o Observable vegetation damage;
- o Growth of herbaceous and woody revegetation species;
- o Growth of native woody vegetation; and
- o Leaf tissue analysis for arsenic, boron, mercury, and sulfate.

PGandE agrees to include in the VSMS:

- o Analysis of boron as follows:
 - Continue monthly sampling for boron concentrations in the cooling tower circulating water for the duration of the Geysers Unit 17 Vegetation Stress Monitoring Study (VSMS).
 - At Geysers Unit 17, collect monthly steam condensate samples down stream of the condensate pumps and determine their boron concentrations for the duration of the Geysers Unit 17 VSMS. This sampling should be conducted within one hour (or as soon as possible), of the sampling in Item 1 above.
 - On a quarterly basis, submit to the CEC the boron data derived from Items 1 and 2 above.
 - As part of the VSMS, PGandE will submit annual reports of the sampling in Items 1 and 2 above, and a final report

upon conclusion of the sampling. These reports will summarize the concentrations occurring within the power plant and provide an explanation of any observed increases.

- o A continuation of the existing annual infrared aerial photography which will include Unit 17.
- o Soil analysis for boron.
- o Details of sampling techniques, frequencies, locations, and species.
- o Methods of data analysis.
- o Examination and monitoring of areas at a distance from Unit 17 for cumulative effects (see VSMS).

Mitigation measures and monitoring programs to determine the effectiveness of mitigation measures are as follows:

- o Wildlife Habitat Improvement, NOI p. 117 (IX.c.) and Mitigation Plan, AFC p. 7 - 21.
- o Wildlife Food Plantings, AFC p. 7 - 21.
- o Wildlife Water Impoundment, AFC p. 7 - 24.
- o Wildlife Cover, AFC p. 7 - 24.
- o Brush Conversion, AFC p. 7 - 25.

- o The Monitoring Report of Wildlife Mitigation Plan will be issued two to four years after implementing the plan.
- o A monitoring program will be implemented to provide data on the success of the revegetation planting program and subsequent establishment of natural vegetation.

Recommended monitoring for effects on aquatic biology is contained in the Water Quality and Soils Sections and AFC Decision Table 1. Biological related parameters include:

- o Sedimentation studies on trout spawning beds.
- o Mitigation and monitoring programs, DER Report 411-79.362.

Verification: CEC will review the VSMS and plan description to monitor wildlife mitigation measures. If any conflicts or problems are raised, CEC will work with PGandE to resolve them. If conflicts or problems cannot be resolved, Dispute Resolution Procedures may be applied. PGandE will allow on-site inspection by CEC.

- 5-4. PGandE will submit to the CEC an annual statement on mitigation and monitoring progress. This statement will indicate compliance upon implementation of a mitigation measure. PGandE will submit to the CEC, two copies of each of the annual reports on the drift, wildlife, and aquatic monitoring studies. Two copies of a final report upon the conclusion of each study will also be submitted to the CEC. One copy of each of the wildlife and aquatic monitoring reports will

be submitted to the CDFG. One copy of the sedimentation study on trout spawning beds will be submitted to the CEC by KGRA-ARM. If, however, this program is abandoned, PGandE will conduct an equivalent program as specified in the Unit 17 NOI, Appendix C.

Verification: All reports submitted by PGandE will be reviewed by CEC and the appropriate designated agency. Complaints submitted by any agency on noncompliance will be reviewed. On-site inspections, as necessary, will be allowed.

- 5-5. If PGandE will be diverting, obstructing, or changing the natural flow or bed of a stream, it will submit an application to the CDFG for a Notice of Streambed Alteration.

Verification: CDFG will notify the CEC that a notice has been obtained or that a notice is not necessary. PGandE will allow on-site review by CEC and CDFG. CDFG will define and enforce appropriate requirements to protect fisheries if a notice is required. All complaints of noncompliance will be reviewed by CEC and CDFG. Any unresolved conflict will be handled according to Dispute Resolution Procedures.

Section 6. WATER QUALITY, HYDROLOGY, AND WATER RESOURCES

A. Applicable Laws, Ordinances, Standards, and Practices

- o The Code of Sonoma County, Chapter 24.
- o Title 23, California Administrative Code, Chapter 3, Subchapters 3, 13, and 15.
- o Title 22, California Administrative Code, Division 4, Chapters 1, 2, and 30.
- o Clean Water Act, 1977.
- o California Public Resources Code, Section 25532.
- o North Coast Regional Water Quality Control Board, Order No. 78-150.
- o North Coast Regional Water Quality Control Board, Order No. 78-16.
- o Water Quality Control Plan, North Coastal Basin (1b).

B. Requirements

- 6-1. In the event of an accidental spill of condensate to a surface stream, PGandE, under NCRWQCB Orders No. 78-16 and 78-150, will implement the following monitoring program:

<u>Constituents</u>	<u>Location</u>	<u>Units</u>	<u>Type of Sample</u>
Electrical Conductivity	001,002,003	mmhos	grab
Boron	001,002,003	mg/l	grab
Sulfate	001,002,003	mg/l	grab
Nitrate	001,002,003	mg/l	grab
Ammonia	001,002,003	mg/l	grab
Nitrite	001,002,003	mg/l	grab
ph	001,002,003	pH units	grab
Turbidity	002,003	FTU	grab
Settleable Matter	002,003	ml/l	grab
Fish Bioassay	001,002,003	LC-50	grab

Sampling location 001 shall be at the source of the spill and shall be representative of the material spilled. It shall be sampled once as soon after the spill as possible.

Sampling location 002 shall be in the affected surface water stream at a point upstream from the area influenced by the spill and shall be sampled once as soon after the spill as possible.

Sampling location 003 shall be in the affected surface water stream within the zone influenced by the spill and shall be relocated as that influenced zone proceeds downstream. It shall be sampled once each six hours beginning as soon after the spill as possible and continuing for as long as the spill can be traced, but not to exceed four samples unless directed to continue by the Executive Officer of the NCRWQCB.

PG&E will report a spill by telephone to the NCRWQCB as soon as possible and submit a detailed written report within two weeks after the spill has occurred. PGandE shall implement a monitoring program similar to those implied in their "Condensate Spill Mitigation," "Emergency Accidental Spills and Discharges Control Procedures," and their "Joint Operational Guidelines." This information and the monitoring reports will be available to CEC staff upon request.

Verification: Reports of spills are to be filed with the NCRWQCB by PGandE. These files are open to the public. The NCRWQCB shall notify the CEC of any potential enforcement actions.

The NCRWQCB is responsible for enforcing Order No. 78-150. (The enforcement may range from administrative to criminal action, depending on the severity of the spill and other factors.)

- 6-2. PGandE shall participate in the cooperative water quality program initiated by the CEC and designated as The Geysers KGRA-ARM. If this program shall fail to be maintained, PGandE will conduct the water quality monitoring program identified in Environmental Impact Inquiry G17-161. One station, located 100 feet below the Unit 11 road crossing, will be sampled monthly for flow, temperature, pH, dissolved oxygen, color, turbidity, settleable solids, specific conductance, ammonia, nitrate, sulfate, and boron. This station was added to an existing monitoring program in Big Sulphur Creek in November 1977. PGandE will submit the monitoring reports to the NCRWQCB as part of the Big Sulphur Creek program.

Condition
closed by
letter to
PG&E
dated 6/1/96

Verification: Files are available to the CEC and the Public. The NCRWQCB will bring any failure to submit monitoring reports to the CEC's attention.

The program may be changed from time-to-time or discontinued depending on the results of the monitoring. Such changes will be mutually agreed upon by PG&E, CEC, and NCRWQCB.

- 6-3. In lieu of filing a Report of Waste Discharge with the North Coast Regional Water Quality Control Board as required by Section 13260 of the Porter Cologne Water Quality Control Act, PG&E has proposed a spill containment system that will preclude accidental discharges of condensate and other wastes off the plant site. PG&E will construct an impermeable retention barrier and basin to contain condensate and other spills at Unit 17. PG&E will submit to Sonoma County CBO and CEC as-built drawings signed by a registered civil engineer for the spill containment basin. PG&E should provide documentation that the spill containment basin is lined with a material having a permeability of 1×10^{-6} cm/sec or less.

Verification: The as-built drawings will be filed with Sonoma County CBO, the NCRWQCB, and the CEC upon completion of construction activities.

- 6-4. If PG&E injects domestic wastes from Unit 17 into the steam supplier's reinjection line, as presently proposed, PG&E shall provide an "as-built" drawing to CBO, signed by a registered civil engineer, showing the domestic waste disposal system carrying the domestic wastes to the steam supplier's reinjection line.

If PGandE does not build a domestic waste disposal system as proposed, CBO will need to review and approve the method of domestic waste disposal prior to facility operation.

Verification: PGandE shall obtain an in-lieu sanitation permit in accordance with the Sonoma County ordinance and shall provide final design plans and "as-built" drawings to the Sonoma County CBO incorporating this design requirement for the domestic waste disposal system.

Section 7. GEOTECHNICAL/SEISMIC HAZARDS

A. Applicable Laws, Ordinances, Standards, and Practices

- o Uniform Building Code, Chapter 70 (1976 edition).
- o Business and Professions Code, Section 7835.
- o Sonoma County Ordinance 2395.

B. Requirements

7-1. PGandE shall assign a qualified geotechnical engineer to monitor compliance with design intent in geotechnical matters, to provide consultation during the design and construction of the project, to make professional geotechnical judgments related to actual site design conditions, and to recommend field changes to the responsible civil engineer and the construction department. Responsibilities of the geotechnical engineer shall include:

- o Review of earthwork quality control tests (including compaction tests);
- o Collection of on-site or near-site groundwater level information;
- o Reporting to the responsible civil engineer any geologic conditions which differ from those predicted on the basis of the site "Soils and Geology Investigation" (Earth Science Associates, September 1976) and "Supplementary Geotechnical Report" (Earth Science Associates, October 1977);

- o Notifying the CEC of any newly confirmed imminent geologic conditions which may warrant substantial changes* in facility design or other mitigation measures and submitting to the CEC the new geotechnical information which warrants such changes; and
- o Preparation, in accordance with requirements of UBC Section 7015 of a Soils Grading Report, with his approval, that the site is adequate for the intended use.

Verification: PGandE's responsible civil engineer in direct charge of design and who will be working in concert with the resident civil engineer in charge of project construction shall verify to the CEC in writing through PGandE's chief civil engineer at least 10 days prior to the start of construction activity that a qualified geotechnical engineer has been assigned to the project and is performing the duties described in the requirement.

- 7-2. PGandE shall assign to the project a certified engineering geologist (if the geotechnical engineer is not also a certified engineering geologist) who will be present as needed during all phases of site excavation and grading to evaluate site geologic conditions and geologic safety.

Responsibilities of the engineering geologist will include:

*See Structural Engineering, Section 10-3, for a definition of "substantial changes."

- o Collection, during site excavation and grading, of information relative to site geology and geologic safety, including inspection and monitoring of drill logs and drill cores;
- o Preparation of a detailed permanent geologic map or log of all final excavated surfaces (including walls and floors of the foundations of the turbine generator building, cooling tower, and other permanent structures);
- o Reporting to the responsible civil or geotechnical engineer any geologic conditions which differ from those predicted on the basis of the reports by Earth Science Associates (September 1976 and October 1977); and
- o Preparation, in accordance with requirements of UBC Section 7015, of a Geologic Grading Report, with approval that the site is adequate for the intended use as affected by geologic conditions.

Verification: PGandE's responsible civil engineer in direct charge of design and who will be working in concert with the resident civil engineer in charge of project construction shall verify to the CEC in writing through PGandE's chief civil engineer at least 10 days prior to the start of construction activity that a certified engineering geologist has been assigned to the project and is performing the duties described in this requirement.

- 7-3. Discovery of adverse site geologic conditions which will warrant only minor changes in facility design or other mitigation measures need not be reported by PGandE to the CEC or the SCBD.

Verification: Such new geotechnical information will be reflected in the as-graded and as-built plans which will be submitted to the SCBD.

- 7-4. Discovery of adverse site geologic conditions which warrant substantial changes in facility design or other mitigation measures will be reported by PGandE to the CEC and the SCBD.

Verification: Within 24 hours after PGandE confirms the presence at the site of an imminent geologic hazard, PGandE's responsible civil engineer or geotechnical engineer will notify the CEC and SCBD of the existence of such hazardous conditions.

After PGandE has evaluated any adverse geologic conditions which may be discovered during site preparation and which may warrant substantial changes in facility design or other mitigation measures, PGandE's civil engineer or geotechnical engineer will notify the CEC and will submit to the CEC the new geotechnical information upon which the necessary new or revised mitigation measures will be based.

Within 24 hours after PGandE has developed new or revised mitigation plans for such hazardous or adverse geologic conditions, PGandE will submit such plans to the CEC for determination of their acceptability.

Upon notification that a hazardous or an adverse geologic condition has been confirmed at the site, the CEC and SCBD may, upon reasonable notice, inspect the site to evaluate such conditions and to offer advice to PGandE in development of a mitigation plan.

Within five working days of submittal of PGandE's proposed new or revised plans, SCBD will notify PGandE whether or not the CEC and SCBD find PGandE's proposed new or revised mitigation plans acceptable.

Upon notification that PGandE's new or revised mitigation plans are unacceptable:

- o PGandE will cease (in affected area only) earthwork and construction (other than that required for safety) or any other implementation of the unapproved plan pending determination of an acceptable mitigation plan by the CEC.

7-5. PGandE will install survey markers to monitor lateral and/or vertical movements (including the shear zone area) when excavations reach plant grade and also in major structural foundations (including the cooling tower).

PGandE will survey the markers according to the following schedule:

- o Once a week during first month after reaching plant grade;
- o Once a month thereafter until start of foundation construction;
- o Every three months thereafter until completion of facility construction; and
- o Once a year thereafter.

Only at their own risk may PGandE proceed with earthwork, construction (other than that required for safety), or any other implementation of an unapproved mitigation plan prior to notification by the CEC. Should the CEC find PGandE's new or revised plan to be unacceptable, PGandE may be required to dismantle any such work before proceeding with the approved mitigation plan; and PGandE may petition the CEC to conduct a hearing to determine an acceptable mitigation plan.

PGandE's civil engineer or geotechnical engineer will notify CEC of the proposed survey marker locations at least seven days prior to completion of final grading.

If significant adverse foundation conditions are encountered during site preparation for the cooling tower, PGandE will notify CEC and submit new geotechnical information.

As soon as possible after evaluating foundation conditions in the shear zone materials and developing specific plans for mitigation of any potential adverse conditions, PGandE will submit such plans and the geotechnical information on which they are based to the CEC and SCBD.

Verification: CEC and SCBD will review proposed survey marker locations within seven working days and will notify PGandE of the network's acceptability. CEC will review the adequacy of proposed revised mitigation measures. If revised mitigation measures are unacceptable, PGandE will cease (in the affected area only) earthwork and construction (other than that required for safety) (or any

other implementation of the unapproved mitigation plan) pending determination of an acceptable plan by CEC; and if agreement cannot be reached on an acceptable mitigation, Dispute Resolution Procedures may be instituted.

- 7-6. If PGandE determines that an additional cell is necessary on the north end of the cooling tower, PGandE will notify the CEC. PGandE will verify during excavation and grading for the foundation pad for the new cell, that site geologic conditions meet with all appropriate conditions of the decision, and Section 7-4 above.

Verification: PGandE's certified engineering geologist will verify compliance, and CEC and SCBD will be allowed to conduct on-site inspections.

Section 8. SOILS

A. Applicable Laws, Ordinances, Standards, and Practices

- o The North Coast Regional Water Quality Control Board Basin Plan.

B. Requirements

- 8-1. PGandE shall comply with the requirements set forth in the North Coastal Basin Plan, concerning the discharge of any organic or earthen materials into any watercourse or placing any such material in locations where it could pass into any watercourse.

Verification: Prior to the start of commercial operations, PGandE shall submit a statement to the North Coast Regional Water quality Control Board (NCRWQCB) and the CEC verifying compliance with the Basin Plan requirements. The NCRWQCB may conduct on-site inspections to verify compliance.

- 8-2. PGandE shall construct the sedimentation basin prior to beginning major earth-moving activities.

Verification: Construction of sedimentation basins shall be noted in the monthly construction progress reports filed with the Sonoma County Chief Building Officer (CBO) and the CEC.

- 8-3. PGandE shall monitor the sedimentation yield through measuring the amount of sediments removed from the sedimentation pond. This information shall be submitted to the NCRWQCB and the CEC.

Verification: PGandE shall submit an annual report to the NCRWQCB and the CEC beginning one year after the start of site preparation and continuing for three years after the start of commercial operation.

Section 9. CIVIL ENGINEERING

A. Applicable Laws, Ordinances, Standards, and Preactices

- o Uniform Building Code (1976 edition).
- o Sonoma County Ordinance 2395.

B. Requirements

9-1. PGandE shall submit grading plans to the Sonoma County Chief Building Official (CBO) for review prior to construction in accordance with Chapter 70, Section 7006, of the Uniform Building Code (1976 edition). The grading plans shall be stamped by a registered civil engineer. PGandE will make in-lieu payments to Sonoma County equivalent to the fees listed in Chapter 70, Section 7007 of the UBC (1976 edition) for review of the grading plans and permits. The CBO shall check the plans and specifications in accordance with the county's plan check procedures. PGandE will notify the CBO and CEC of any substantial design changes to approved plans.

Verification: If the work described in the grading plans conforms to the requirements, the CBO shall return to PGandE one complete set of the submittals stamped and signed with his approval and shall issue an in-lieu grading permit. PGandE shall notify the CEC following receipt of the grading permit. Changes in plans shall be deemed approved unless PGandE is notified within five days.

9-2. PGandE shall prepare and submit one copy each of the following to the Sonoma County CBO:

- o A summary of Soils Compaction Tests.
- o "As-Built" grading drawings. (PGandE's responsible civil engineer shall certify on the "As-Built" drawings that all site earthwork was done in accordance with the approved final grading plan, including subsequent change orders, and satisfies the design intent.)
- o A final report and site approval signed by a civil engineer.
- o A monthly summary of construction progress.

Verification: All submittals listed above, except construction progress, shall be submitted by PGandE within 180 days after completion of site preparation. Within 60 days of receipt of such plans and documents by the CBO, these will be deemed approved by the CBO unless PGandE is notified otherwise. Construction progress reports shall be submitted monthly until the unit has started commercial operation.

- 9-3. PGandE shall ensure quality control of the project by providing, through the General Construction Department, a staff of field engineers and inspectors to monitor conformance with all contract specifications. Field engineer(s) and/or inspector(s) will be present on site at all times to monitor construction activities. The Sonoma County CBO, his agent, or the CEC staff may, upon reasonable notice, inspect the site at any time. On-site inspections shall be performed in accordance with Chapters 3 and 70 of the UBC (1976 edition).

Verification: Inspection shall be done by Sonoma County CBO or his agent. Special and continuous inspections may be delegated by the CBO to PGandE as provided in Section 305, Chapter 3 of the UBC. If the inspector finds that the work is not being done in accordance with the approved plans, the discrepancies shall be reported immediately in writing to the CBO, the CEC and PGandE's responsible civil engineer.

Section 10. STRUCTURAL ENGINEERING

A. Applicable Laws, Ordinances, Standards, and Practices

- o Uniform Building Code (1976 edition), excepting Section 2312.
(NOTE: The UBC 1976 is adopted by Title 24 California Administrative Code as the minimum legal state building standard and by Sonoma County ordinance.)
- o American Society of Mechanical Engineers' Boiler and Pressure Vessel Code (ASME BPV Code). (NOTE: The ASME BPV Code is adopted by Title 8 California Administrative Code.)
- o American National Standards Institute (ANSI), "B 31.1 Power Piping Code" (ANSI B 31.1).
- o American Concrete Institute (ACI), "Building Code Requirements for Reinforced Concrete" (ACI 318-77).
- o ACI, "Building Code Requirements for Structural Plain Concrete" (ACI 322-72).
- o ACI, "Commentary on Building Code Requirements for Reinforced Concrete" (ACI 318C-77).
- o American Institute of Steel Construction (AISC), "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings," November 1978.
- o AISC (CSDFESS-78) "Commentary on the Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings."

- o AISC, "Specification for Structural Joints Using ASTM 325 or A490 Bolts," 1978.
- o Steel Joint Institute, "Standard Specifications and Load Tables."
- o American Welding Society, "Structural Welding Code AWS D.1.1-79."
- o National Design Specifications for Stress-grade Lumber and Fastenings 1977."
- o American Association of State Highway and Transportation Officials, "Standard Specifications for Highway Bridge," 1977 edition.
- o The standards listed in the AFC Appendix A, including Sections 3.3, 5.3.4, 6.1.3, 6.3.1.4, and Appendix D to Appendix B, Section 2.04.
- o Structural Engineers Association of California (SEAOC), "Recommended Lateral Force Requirements," 1975, Recommended Practices and Commentary as incorporated into UBC 1976, Section 2313(a).
- o Sonoma County Ordinance No. 2395 excepting Section 2312 of the reference adopted in Section 4-14(a).

In addition, the following standards shall be used as guides only:

- o Seismic Safety Commission, Policy on "Locating, Designing, and Operating Critical Facilities and Lifeline Facilities," 1978.
- o Joint Committee on Seismic Safety, "Final Report to the Legislature, State of California," 1974 (CDMG SP No. 45).
- o "Earthquake Design Criteria for Structures," G.W. Housner and P.C. Jennings, EERL 77-06, 1978.

- o Applied Technology Council, "Tentative Provisions for the Development of Seismic Regulations for Buildings," ATC 3-06, 1978.

B. Requirements

10-1. PGandE shall design and construct Unit 17 and its related facilities consistent with applicable laws, ordinances, standards, and practices, and with the information, criteria, and methods set forth in the following documents:

- o Geysers Unit 17 AFC, Section 4.3, "Structural Engineering Design," and Appendix A entitled "Design Criteria and Guidelines for Geysers Geothermal Projects;"
- o "Applicant's Response to Staff Interrogatories," 79-AFC-1, dated April 24, 1979, and June 11, 1979, and June 13, 1979; and
- o "Additional Information on H₂S Abatement and Preliminary Data on Major Components," 79-AFC-1, dated July 20, 1979.

In the case of discrepancies between the criteria contained in the above documents, PGandE should use the highest design criteria in the final design of the facility.

When using the ATC 3-06, PGandE will use a value of 1.0 for the coefficient "P" in equation 8-2. In any event, the working criteria will be consistent with the performance and design criteria.

In the final design calculations and construction drawings, PGandE shall demonstrate that the design of the OCB switchyard and gas ejector structure will withstand a peak ground acceleration of 0.3g without exceeding first yield or ultimate stress with suitable damping ratios.

Verification: PGandE shall submit building plans to the Sonoma County Chief Building Official. The building plans shall be stamped by a registered civil engineer as required by the Uniform Building Code (UBC). PGandE shall make in-lieu payments to Sonoma County equivalent to the fees listed in Chapter 3, Section 303, of the UBC (1976 edition) for review of the building plans. The Chief Building Official shall check the plans in accordance with the County's plan check procedures. He shall notify the CEC and PGandE when the work described in the plans and specifications conforms to the requirements of UBC and pertinent laws and ordinances. The Chief Building Official shall return one copy of the approved plans and calculations to PGandE.

10-2. PGandE will ensure the final design of the cooling tower structure is based upon:

- o A working stress criterion;
- o A peak ground acceleration of 0.16g;
- o A design spectrum as specified in NRC Regulatory Guide No. 1.50, or the site specific spectrum referred to in the AFC scaled to 0.16g zero period ordinate;

- o A damping ratio of 7 percent; and

- o A dynamic analysis using conventionally acceptable methods.

Verification: Two hundred and forty (240) days prior to the start of construction of the cooling structures, PGandE shall submit for CEC review the dynamic analysis methods and models which will be used in the analysis. PGandE may proceed with the analysis unless notified otherwise by the Executive Director within thirty (30) days. If CEC's concerns cannot be resolved, the matter shall be handled according to Dispute Resolution Procedures.

One hundred and eighty (180) days prior to the start of construction of the cooling tower structure, a design check will be submitted which is based upon: (1) a peak ground acceleration of approximately 0.3g; (2) a response spectrum; (3) a damping ratio that is appropriate for the anticipated stress levels; and (4) a dynamic analysis using conventionally acceptable methods. PGandE may proceed with the processing of designs unless notified otherwise by the Executive Director within 30 days.

In the event that stresses in the structure are not within ultimate limits, PGandE will either:

1. Make the appropriate design modifications to increase the strength of the structures; or
2. Perform a cost-benefit-risk analysis to select an optimum design based on a lower criterion.

One hundred and twenty (120) days prior to cooling tower construction, PGandE shall submit the final design calculations and drawings to the CEC and Sonoma County Office of Building Inspection for review.

If the plans and specifications do not comply with requirements, they will be returned to PGandE for correction. If corrections are not acceptable, no structure construction or equipment installation will be allowed.

- 10-3. PGandE shall notify the Sonoma County CBO and the CEC of substantial design changes to the final plans as required by UBC Section 7014, 7015, and 302. "Substantial changes" include all changes requiring an alteration in design concept and preparation of new design plans consistent with the AFC conditions of certification. Minor changes shall be reflected in the "As-Built" drawings submitted after construction.

Verification: PGandE shall submit two sets of the revised drawings, specifications, and calculations to the Sonoma County CBO for review. The CBO will review these plans, in consultation with the CEC, on an expedited basis. The CBO will return one set of submittals stamped and signed with his approval to PGandE, provided the plans comply with the stated requirements.

- 10-4. PGandE shall ensure quality control of the project by providing, through the General Construction Department, a staff of field engineers and inspectors to monitor conformance with all contract specifications. Field engineer(s) and/or inspector(s) will be present on site at all times to monitor construction activities.

Inspections shall be performed in accordance with Chapter 3 and 70 of the Uniform Building Code (1976) for special and continuous inspections to PGandE as provided in Section 305, Chapter 3 of the UBC 1976.

Verification: The Sonoma County Chief Building Official, his agent, or the CEC Staff may, upon reasonable notice, inspect the site at any time.

- 10-5. PGandE shall keep the Sonoma County CBO and the CEC informed regarding the status of construction.

Verification: PGandE shall submit a monthly construction progress report to the Sonoma County CBO and the CEC.

- 10-6. PGandE shall prepare and submit one set of the following documents to the Sonoma County CBO within 180 days after completion of construction. These documents will be reviewed by the CBO, who shall notify PGandE of his approval or disapproval of the documents within 60 days of receipt.

- o A statement indicating compliance and site approval signed by PGandE's responsible civil engineer;
- o "As-built" drawings for the construction of civil and architectural work (changes approved by the CBO shall be identified on the "as-built" drawing);
- o Summary of concrete strength tests;

- o Copies of concrete pour sign-off sheets;
- o Bolt torque inspection reports; and
- o Weld (field) inspection sheets.

Verification: PGandE shall notify the CEC following the submittal of these documents to the Sonoma County CBO.

Section 11. SOLID WASTE MANAGEMENT

A. Applicable Laws, Ordinances, Standards, and Practices

- o Title 22, California Administrative Code (CAC), Division 4, Chapter 30
- o Title 23, CAC, Chapter 3.
- o Health and Safety Code, Division 20, Chapter 6.5.
- o California Water Code, Section 13260.
- o Federal Resources Conservation and Recovery Act Regulations.
- o Title 40, Code of Federal Regulations, Parts 260-265, 122-124.

B. Requirements

- 11-1. PGandE shall ensure that all hazardous wastes are transported in accordance with applicable laws and ordinances.

Verification: Each month PGandE shall submit completed hazardous waste manifests to DOHS in compliance with Section 66475 of Title 22, CAC.

- 11-2. PGandE shall ensure that hazardous wastes are disposed of at a facility permitted by DOHS to accept such wastes. (PGandE proposes to contract with the I.T. Corporation at Kelseyville.)

Verification: PGandE shall notify the CEC, DOHS, and Solid Waste Management Board of the selected disposal site. Any notice of change in disposal sites will be submitted as changes occur.

11-3. If hazardous wastes are stored on site for more than 90 days, PGandE shall apply to DOHS for either (1) a hazardous waste facility permit or (2) a waiver from such permit depending upon the nature of the waste and conditions of storage. In addition, PGandE must obtain an amendment to their certification and monitoring program from the CEC.

Verification: PGandE shall notify the CEC if it files an in-lieu application with DOHS for the operation of a hazardous waste facility. Upon filing, PGandE shall supply the CEC with the necessary information to amend the certification and monitoring program.

Section 12. SAFETY

A. Applicable Laws, Ordinances, Standards, and Practices

- o Title 8, California Administrative Code, §§ 3203 et seq.
- o Title 8, California Administrative Code, Chapter 4.7, Groups 20 and 27.
- o Uniform Building Code (1976 edition): Chapters 5, 20, 32, and 33.
- o National Fire Protection Association (NFPA) Standards: 10, 13, 14 (Class II service), 19B, 20, 26, 27, 30, 70 (National Electric Code), 194, 196, 198, 214, and 231(a).
- o Public Resources Code, Section 4291.
- o 49 CFR, Section 173.249, 173.308, 178.36, 178.37.
- o American Petroleum Institute (API) Standard 650.
- o Manufacturing Chemists Association (MCA) Chemical Safety Data Sheet SD-53.
- o ATC-3-06, Section 8.3.
- o ASME Code Section VIII, Division I, latest Division.

B. Requirements

- 12-1. PGandE shall implement an accident prevention program in accordance with the provisions of Sections 3203 et seq. of Title 8, CAC. (These sections include chemical handling and storage and provisions for hazardous materials and airborne contaminant exposure based on

Section 5155, Title 8, CAC.) PGandE shall request Cal/OSHA consultation service to review this accident prevention program.

Verification: PGandE shall obtain a letter from the Cal/OSHA consultation service verifying compliance with the requirements of Section 3203, Title 8, CAC. Notification of this verification shall be filed with the CEC not later than 150 days prior to commencement of operation of Unit 17.

- 12-2. On-site worker safety inspections shall be conducted by the California Division of Occupational Safety and Health (DOSH) during construction and operation of the facility or when an employee complaint has been received. Cal/DOSH shall notify the CEC in writing in the event of a violation that could involve DOSH action affecting the construction or operation schedule.

Verification: PGandE shall note any Cal/DOSH inspections in its periodic compliance reports.

- 12-3. PGandE shall provide automatic sprinkler systems for the cooling tower, lube oil reservoir and purifier, seal oil tank, and the main transformer. A manual spray wetting system shall be installed on the cooling tower to be operated during shutdown periods to reduce the flammability of wooden members. Additional mitigation measures are specified in The Geysers 17 Final Decision.

Verification: PGandE shall submit a letter signed by a registered Fire Protection Engineer familiar with the design and construction of Unit 17, verifying that the above requirement has been met.

- 12-4. PGandE shall certify that the facility design and construction are in conformance with applicable fire safety codes, standards, laws, and ordinances.

Verification: PGandE shall submit a letter from a registered Fire Protection Engineer familiar with the design and construction of Unit 17, verifying that the above requirement has been met. PGandE shall make the facility available for inspection by the CEC after a minimum of a 24 hour notice.

- 12-5. PGandE shall ensure that all storage vessels are designed and installed in compliance with all applicable laws and standards.

Verification: PGandE shall submit a letter, signed by a registered mechanical engineer and verifying compliance, to Cal/DOSH no later than 30 days before commercial operation. Either CEC or Cal/DOSH may inspect the storage vessels for compliance with applicable laws and standards.

- 12-6. PGandE shall ensure that all pressure vessels are designed and constructed in compliance with all applicable laws and standards.

Verification: PGandE shall submit to the CEC no later than 30 days prior to the first turbine roll copies of Certified Code papers for all pressure vessels designed to ASME standards.

Within 90 days after the first turbine roll, PGandE shall allow the CEC or its agent to review final construction drawings stamped and executed by a registered professional engineer familiar with the design and construction of Unit 17, for compliance with applicable laws and standards.

12-7. PGandE shall ensure that the Stretford system tanks have been designed and fabricated in accordance with API Standard 650 and that the Stretford system pressure vessels have been designed and fabricated in accordance with ASME Code Section VIII, Division I.

Verification: PGandE shall submit a letter, signed by a registered mechanical engineer and verifying compliance, to the Sonoma County Building Inspector no later than 30 days before commercial operation. In addition, the Division of Occupational Safety and Health shall verify compliance through on-site inspection.

12-8. PGandE shall ensure that the hydrogen peroxide tanks have been designed and fabricated in accordance with MCA Chemical Safety Data Sheet SD-53.

Verification: PGandE shall submit a letter, signed by a registered mechanical engineer and verifying compliance, to the Sonoma County Building Inspector no later than 30 days before commercial operation. In addition, the Division of Occupational Safety and Health shall verify compliance through an on-site inspection.

12-9. PGandE shall ensure that hydrogen gas will be stored in standard DOT approved industrial high pressure cylinders as defined in Title 49 of the Code of Federal Regulations. All other materials will be stored in standard drums and tanks.

Verification: PGandE shall submit a letter, signed by a registered mechanical engineer and verifying compliance, to Cal/DOSH no later than 30 days before commercial operation.

12-10. PGandE shall ensure that the lube oil storage tanks are designed in accordance with API Standard 650.

Verification: PGandE shall submit a letter, signed by a registered mechanical engineer and verifying compliance, to the Sonoma County Building Inspector no later than 30 days before commercial operation. The Division of Occupational Safety and Health shall verify compliance through on-site inspection.

Section 13. TRANSMISSION LINE SAFETY AND NUISANCE

A. Applicable Laws, Ordinances, Standards, and Practices

- o California Public Utility Commission (CPUC) General Order 95 and 131-B.
- o California Occupational Safety and Health Administration (CAL/OSHA), Title 8, California Administrative Code (CAC), Article 85, Section 2940 et seq., Article 87, Section 2950, et. seq., Sections 5095 - 5099.
- o Title 8, CAC, Chapter 4, Subchapters 4 and 7.
- o Title 24, Public Resources Code (PRC), Sections 4292 - 4296 and 1250 - 1258.
- o Federal Aviation Administration (FAA), 49 USCA 1348, 14 CFR, Part 77.
- o Federal Communications Commission (FCC), 47 CFR, Part 15.25.
- o Grounding criteria (PGandE Drawing 020607).

B. Requirements

- 13-1. PGandE shall ensure that the design, construction, operation, and decommissioning of the transmission line satisfies or exceeds both the requirements of PRC Sections 4292 - 4296 and PRC Title 14, Sections 1250 - 1258 of the CAC, PUC General Order 95 (GO 95) the terms and conditions of CEC certification, and all applicable laws,

ordinances, standards, and practices. PGandE shall receive CEC approval for the following significant changes in transmission line design.

- a. Number, type, and configuration of towers.
- b. Voltage (phase to phase).
- c. Number of circuits.
- d. Size, number, and type of conductor (including static wires).
- e. Normal and emergency rating of conductors (MVA and MW).
- f. Route, route length, and right-of-way width.
- g. CEC grounding criteria.

Verification: Within 30 days following completion of transmission line, PGandE shall submit to the CEC a statement signed by a registered electrical engineer which verifies compliance with the requirements of PUC General Order 95 and with the terms and conditions of CEC certification.

- 13-2. PGandE shall provide CEC with one copy of the application for the Certificate of Public Convenience and Necessity (CPCN) which is filed with the CPUC.

Verification: PGandE shall provide the CEC with one copy of the CPCN within seven days of the filing date.

- 13-3. PGandE shall inspect and maintain the transmission line in accordance with GO 95, the terms and conditions of the CEC approval, and all applicable laws, ordinances, standards, and practices.

Verification: PGandE shall maintain a record of noncompliance and maintenance inspections. These records shall be made available to authorized staff upon request.

- 13-4. On-site worker safety inspections shall be conducted by the California Division of Occupational Safety and Health (Cal/DOSH) during construction and operation of the transmission line or when an employee complaint has been received. Cal/DOSH shall notify the CEC in writing in the event of a violation that could involve DOSH actions affecting the transmission line construction or operation schedule.

Verification: PGandE shall note any Cal/DOSH inspections in its periodic compliance reports.

- 13-5. PGandE shall prepare a "No Hazard to Air Navigation" form to be submitted to the Federal Aviation Administration (FAA) if it is anticipated that the transmission line towers or any appurtenances would be more than 200 feet in height above the ground per FAA part 77.

Verification: PGandE shall file the above form, if required, no less than 30 days prior to construction with a copy sent to the CEC concurrently.

- 13-6. PGandE shall make every reasonable effort to locate and correct, on a case-by-case basis, all causes of radio and television interference attributed to the transmission line facilities, including, if necessary, the modification of receivers and/or the furnishing

and installation of antennas. In addition, PGandE shall take reasonable care to prevent the conductors from being scratched or abraded.

Verification: PGandE shall identify the number and type of RI/TVI complaints and corrective actions taken in the first annual compliance report to the CEC. Subsequent reports are not required unless requested by the CEC.

- 13-7. PGandE shall ensure that, regardless of location or ownership, all ungrounded metallic fences longer than 150 feet within the right-of-way shall be grounded following the procedures outlined in the PGandE grounding standard, drawing 020607, sheets 1 through 5.

Verification: Within 30 days after completion of transmission line construction, PGandE shall file a statement verifying compliance.

- 13-8. In the event of complaints regarding induced currents from vehicles, portable objects, large metallic roofs, fences, gutters, or other objects, PGandE shall investigate and take all reasonable measures at its own expense to correct the problem for valid complaints, provided that: (a) the object is located outside the right-of-way, or (b) the object is within the right-of-way and existed prior to right-of-way acquisition.

For objects constructed, installed, or otherwise placed within the right-of-way after right-of-way acquisition, PGandE shall notify the owner of the object that it should be grounded. In this case, grounding is the responsibility of the property owner. PGandE shall

advise the property owner of this responsibility in writing prior to signing the right-of-way agreement.

Verification: PGandE shall provide a statement in the first annual compliance report verifying compliance.

Section 14. TRANSMISSION LINE ENGINEERING

(Compliance requirements are included in Section 13.)

Section 15. TRANSMISSION LINE BIOLOGICAL RESOURCES

A. Applicable Laws, Ordinances, Standards, and Practices

- o Warren-Alquist Act, Public Resources Code, § 25003 and 25523.
- o Federal Endangered Species Act of 1973 and implementing regulations.
- o Ecological Reserve Act of 1970 and implementing regulations, Fish and Game Code, § 1580 through 1584.
- o California Endangered species Act of 1970, Fish and Game Code, § 2050 through 2055.
- o Fully Protected Species Act, Fish and Game Code, § 3511, 4700, 5000, 5050, and 5515.
- o Fish and Wildlife Protection and Conservation, Fish and Game Code, § 1600 et seq.
- o California Environmental Quality Act, Public Resources Code, § 21000 et seq.

B. Requirement

15-1. PGandE shall construct the transmission line as specified in NOI p. 116 (IX.B.2).

Verification: PGandE will submit a statement of compliance upon completion of the transmission line.

Section 16. NOISE

A. Applicable Laws, Ordinances, Standards, and Practices

- o Occupational Health and Safety Act of 1970 (29 CFR 1910 et seq.).
- o Title 8, California Administrative Code, Article 105.
- o Noise Element of the General Plan for Sonoma County, California.

B. Requirements

16-1. In the event PGandE receives public complaints of the noise due to construction, PGandE shall, immediately conduct an investigation to determine the extent of the problem. PGandE shall take reasonable measures to resolve the complaints and to report those measures to the complainant.

Verification: PGandE shall develop and submit to the Sonoma County Planning Department a procedure for handling public complaints. The Sonoma County Planning Department will notify PGandE and the CEC when the procedure is acceptable.

16-2. If requested by the Sonoma County Planning Department, PGandE shall conduct noise surveys at the sensitive receptors registering complaints and at the facility property line nearest the complaining receptors. Surveys shall be taken for the period of the construction working day and under circumstances similar to those when the complaints were perceived. The survey should be reported in terms of the L_x and L_{eq} levels ($x=10, 50, \text{ and } 90$). Based on this survey, PGandE shall identify and implement feasible mitigation measures necessary to assure compliance with the county standards.

Verification: Within 120 days, PGandE shall notify the Sonoma County Planning Department of the survey results, the mitigation measures applied to resolve the problem, and the results of these efforts. Sonoma County shall advise the CEC of any continuing non-compliance conditions.

- 16-3. Within 90 days after the plant reaches its rated power generation capacity and construction is complete, PGandE shall conduct a noise survey at the nearest sensitive receptor and at 500 feet from the generating station. The survey will cover a 24-hour period during normal power plant operations with results reported in terms of L_x ($x=10, 50, \text{ and } 90$), L_{eq} and L_{dn} levels.

PGandE shall prepare a report of the survey that will be used to determine the plant's conformance with county standards. In the event that county standards are being exceeded, the report shall also contain a mitigation plan and a schedule to correct the noncompliance.

No future noise surveys of off-site operational noise are required unless the public registers complaints or the noise from the project is suspected of increasing due to a change in the operation of the facility.

Verification: Within 30 days of the noise survey, PGandE shall submit its report to the Sonoma County Planning Department and CEC. Sonoma County will advise the CEC of the receipt and acceptability of the report.

16-4. Within 180 days of the time the facility has attained its anticipated capacity factor, PGandE shall prepare a noise survey report for the noise-hazardous areas in the facility. The survey shall be conducted in accordance with the provisions of Title 3 CAC, Article 105. The survey results will be used to verify compliance with standards for the protection of employees from noise impacts.

Verification: PGandE shall notify Cal/DOSH and the CEC of the availability of the report.