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APPENDIX A
COMPLIANCE PLAN
FOR
PGandE GEYSERS UNIT 20

(82-AFC-1)

This Compliance Plan is intended to be only a ministerial reorganization of the substantive requirements contained in the Committee's Proposed Decision, as amended, and approved by the full Commission on February 9, 1983.

February 1983

California Energy Commission

PREFACE

The Commission's certification is statutorily designated as "in lieu of any permit, certificate, or similar document required by any state, local or regional agency, or federal agency to the extent permitted by federal law" (Public Resources Code Section 25500). The Compliance Plan is the principal operative means of ensuring that conditions imposed are complied with. While arguably the Commission could perform the inspection and other like activities necessary to ensuring adequate construction, operation, and design of a power plant consistently with its preemptive licensing authority, it has, through the Compliance Plan, conceptually delegated these functions back to the agencies which would otherwise be responsible for performing permit issuance and inspection functions. Thus issuance of the consolidated Commission permit remains, but initial responsibility for enforcement of conditions is delegated. The Commission retains, again through the Compliance Plan, a monitoring function (pursuant to Public Resources Code Section 25532) as a means of tracking fulfillment of its conditions of certification. In cases of dispute, the Compliance Plan contains procedures available for resolution.

Thus, the Compliance Plan contains only a repetition of Commission-approved Conditions and Requirements. The "Compliance" element, per se, of the Plan is essentially a means of tracking condition fulfillment; the added dispute resolution mechanism reflects an expeditious method of clarifying or modifying conditions should circumstances so dictate. Commission delegation to local agencies, through the Compliance Plan, does not denigrate the preemptive power plant siting authority of its statutorily authorized certification.

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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 CEC or specified in the written decision on the application. The following plan is formulated to satisfy that directive for the PGandE Geysers Unit 20.

The CEC's jurisdiction extends only to the power plant and related facilities, including the transmission tap line to the point of interconnection with the power grid. The CEC'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, by appropriate letters from delegate agencies verifying compliance, 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 requirements;
- 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 20. 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 20 compliance matters should be addressed as follows:

Compliance Auditor (82-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 CEC's legal authority to impose legal sanctions for noncompliance is specified in Title 20, California Administrative Code, Sections 1230 et seq. and California Public Resources Code, 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 CEC.

Confidential Information

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

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 CEC 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 20. 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:

- Immediately schedule a meeting with the requesting party and PGandE to be held promptly at a mutually convenient time and place,

- Secure the attendance of appropriate CEC staff and staff of any other agency with general jurisdiction and expertise in the subject area of concern,
 - 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, and
 - 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 Title 20, California Administration Code, Section 1215, PGandE, CEC staff, or the party requesting an investigation may request review of any committee order or decision.
 - o All recommended amendments to conditions of certification resulting from Committee investigations shall be approved by the full Commission.

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 220, 230, 260(b), 400(a), 410(a), 420(d), 430, and 455 (a and b).
- o Clean Air Act and implementing federal regulations.
- o California Health and Safety Code, and implementing regulations.

B. Requirements

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

Verification: PGandE shall summarize in an annual compliance report to the CEC any significant interactions related to Geysers 20 with the NSCAPCD. 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 NSCAPCD document entitled "Determination of Compliance," dated September 16, 1982.

NSCAPCD DOC Conditions:

1. This shall be your DOC for construction and temporary Permit to Operate once construction is complete. The District must be notified approximately 30 days prior to commencing construction and operating the geothermal power plant and control system. The Applicant shall allow representatives of the District to enter the premises in order to observe construction testing as is necessary to determine compliance with the rules and regulations of the District and the terms and conditions of this DOC for construction and temporary Permit to Operate. The Applicant shall notify the District when construction is completed.
2. In the operation of PGandE Unit 20 geothermal power plant the Applicant shall control H₂S emissions to 5 lbs H₂S per million pounds of steam or 10.4 lbs H₂S/hr as well as comply with all applicable federal, state, and local laws, standards, and ordinances and the terms and conditions set forth herein.
3. The atmospheric emission control system described in the 82-AFC-1 shall be utilized. The system as described shall consist of the following concurrently operating major components:
 - a. A surface condenser to facilitate the partitioning of H₂S into the noncondensable gas phase,
 - b. A Stretford unit as specified in the AFC to reduce the H₂S concentration in the treated noncondensable gases to 125 ppm by volume or less, but in no event greater than 0.5 lb/hr,
 - 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 2, and
 - d. An equally effective alternative to (c) provided the District gives prior approval.

In addition,

- a. The emission control system specified above shall be properly winterized, and
 - b. If a solids removal system is necessary as a result of solids formation in condensate, such facility shall be incorporated into the system.
4. The Applicant shall, in any consecutive 12 month period limit unscheduled outages to no more than a total of 12. The following shall not be used in computing the total outages:

- a. Scheduled outages (defined as outages with 24 hours advance notice* between steam supplier and Applicant),
- b. Steam supplier induced outages (such as pressure surge, strainer plugging, etc.), and
- c. Outage of less than 2.0 hours.

The Applicant shall not start-up Unit 20 until a control system, approved by the District, for stacking emissions is installed and operational by Union Oil Company of California. The outage "count" shall start seven months after initial start-up (defined as once steam passes through the turbine) of Unit 20 in order to allow steam supplier and Applicant to gain experience with Unit 20. A violation of the above performance standard is considered a violation of this condition.

The Applicant shall, on a monthly basis, provide the District with the number of outages, cause of each outage, and the balance of outages for the past 12 months. The Control Officer may change the frequency of reporting at the request of the Applicant. The Applicant shall inform the District and CEC when the total number of outages reaches 12 or greater, within 5 working days. The Applicant shall allow the District and CEC to inspect all operating logs to verify the total number of outages. These requirements are in addition to the applicable requirements of Rule 540.

The Applicant shall submit by January 15, 1983, to the District and CEC a preliminary "plan" on how the Applicant plans to achieve the outage standard set forth above. This good faith effort shall consider those measures outlined in the next paragraph and shall contain an explanation as to why a newer approach will meet the outage standard when compared to the current operations. Other than the submittal date this preliminary "plan" shall be nonbinding.

In the event the Applicant is not able to meet the standards specified above, the following shall be required. Applicant shall prepare and submit a revised "plan" to the Control Officer, within 30 days of the end of the month in which the outage limit is exceeded to achieve the outage standards set forth above. At a minimum, the measures to be considered in the "plan" shall include: operational protocol, improved coordination of the power plant and steam field operations, improved alarming and control systems, increased duration of manned operation of the power plant, improved preventative maintenance, and design modifications as may be indicated by the operating histories of Unit 20 and other similarly designed PGandE units.

*Except in the case of Unit 20 outages resulting from an abundance of hydro-power in which case a scheduled outage shall be defined as one hour's notice.

Within 30 days of receipt of the "plan" the Control Officer shall determine whether the "plan" is satisfactory and, if so, shall approve the "plan." Upon approval of such "plan" it shall supercede and become a part of the terms and conditions of the DOC and shall be incorporated in any certification and any Permit to Operate issued for Geysers Unit 20 at this site.

(The intent of this Condition 4 is for the Applicant to reduce by some 45 percent over the life of the proposed unit, the total steam stacking resulting from unscheduled power plant outages when compared to the current practices and history of similar Units 12 and 14 from 1979 through 1981. Although one method to achieve such a reduction would be the use of a turbine bypass, the Applicant is confident that alternate measures as mentioned for inclusion in the "plan" will be equally effective. In any event the net effect will be reduced steam stacking to the atmosphere.)

5. The Applicant shall design and install cooling towers to have a drift rate of no more than .002 percent of the circulation water flow as described in the AFC.
6. The off-gas vent to the atmosphere with untreated vent gas shall be used only during upset/breakdown situations. During periods of cold start-ups, the H₂S vent gas treatment system shall be operated to preclude the release of untreated vent gases to the atmosphere unless it is required for human or equipment safety.
7. The Applicant shall comply with all appropriate sections of Rule 540. All breakdown information and responses shall be public record when not in conflict with Public Records Rule 150.
8. All construction areas in the immediate vicinity and under the Applicant's responsibility for the power plant during the construction phase shall be properly treated to meet the requirements of Fugitive Dust Rule 430.
9. The Applicant will be licensed on the basis of a hydrogen peroxide/catalyst and Stretford/surface condenser system. However, the Applicant may propose to use other means to comply with the hydrogen sulfide emissions limitation of Condition 2. The Applicant shall submit, no later than two years* prior to the scheduled commercial operation, the conceptual design of the finally selected abatement system if different than proposed in the AFC along with supporting documents, including

*If the Applicant can establish a different system that could be operational at the start-up date, then the two-year requirement can be waived by the CEC and the District.

data demonstrating compliance with the emissions limitation of Condition 2. Such data shall be submitted to the CEC, the ARB, and the District within 60 days prior to the date intended for commencement of the final design of the proposed system. Final design shall not proceed until the District determines that the material submitted is adequate to demonstrate compliance with the H₂S emissions limitation. The District shall render a determination within 30 days following the receipt of the material from the Applicant.

10. At least 60 days prior to scheduled commercial operation, the Applicant shall submit to the District, for approval, a detailed plan for testing the performance of the PGandE Unit 20 power plant H₂S abatement system at normal full load operation. A copy of the plan shall also be sent to the ARB for comment. Normal full load for this purpose is defined as operating at a minimum of 90 percent of the 2,000,000 lbs/hr steam flow capacity. The District shall approve, disapprove, or modify the plan within 30 days of receipt from the Applicant. Within sixty (60) days after achieving the highest practical production rate of the geothermal generating unit but no later than 180 days after initial start-up of the plant, the Applicant shall conduct performance tests on the power plant.
11. The Applicant shall conduct performance tests as delineated in CEC Public Health Compliance Plan Condition 5 (dealing with well test steam constituent analysis). Test results shall be furnished to the district.
12. (Intent--The District fully believes H₂S emissions from power plants should be continuously monitored for compliance purposes because of the changing H₂S content of geothermal steam due to its nonhomogeneity or due to steam supplier switching steam supplies. However, specific equipment has not been yet adapted to geothermal environment to a fully satisfactory extent. Therefore, the Applicant shall pursue a program to develop suitable monitoring, but in the meanwhile they shall be required to implement provisions of Part "A" of this condition below.)
 - A. Until such time as a continuous emission compliance monitor is installed, the Applicant shall be held responsible for the following commitments relative to a computer based alarm system (CBAS):
 1. Applicant 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. During operation, this system shall detect, alarm, and log the failures or operation of the above equipment or systems which could lead to a significant loss of abatement. This CBAS system shall be used to initiate an investigation by plant operators, manual H₂S concentration tests of the Stretford exhaust, and/or corrective actions as necessary. Such investigation, testing, or corrective action shall be logged by the plant operator. The computer system shall be maintained, and any failures or alarms shall be logged, along with the actions taken. The Control Officer will determine the applicability of this system as a monitoring system relative to the reporting requirements of District Rule 540.
 3. Plant personnel will also normally inspect the operating Stretford and secondary abatement facilities once per shift, checking for proper operation. Stretford solution chemistry and off-gas H₂S concentration will be checked weekly when the system is in operation.
 4. Computer system alarm logs and operator logs showing normal checks and abnormal or alarm conditions, responses, and corrective actions shall be available for inspection on site upon request.
 5. Quarterly reports on the performance of the CBAS shall be submitted to the APCD.
- B. Until such time that a continuous emission monitoring system is installed or in the event that the Control Officer determines that monitors meeting the specifications below are not commercially available within 1 year after initial start-up, the Applicant shall conduct source testing no less than once every 30 operating days to ensure compliance with (DOC) conditions. Part "A" of this condition is to be in effect commencing upon start-up. The testing procedures to determine compliance with DOC conditions shall be submitted 90 days prior to start-up for District approval. A log of such testing shall be maintained and made available to the District upon request.
- C. A summary of monitoring data or source test data is to be forwarded to the District every 30 days. This summary is subject to the requirements of Rule 455(c).

D. The Applicant shall submit within a reasonable period of time (target date approximately January 14, 1983) to the District for approval, a proposal which outlines an "in-house" development program for continuous compliance H₂S monitoring devices to meet the following requirements:

1. H₂S emissions shall be monitored by measuring the following parameters: (a) total process mass or volume flow rates and (b) H₂S concentrations within those process 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, the Applicant can pursue item (c) first. However if (c) proves infeasible, then items 2(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 percent 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 Control Officer may for good cause change the specifications above.
4. Flow rate measuring devices must have accuracies of +5 percent at 40 percent to 120 percent of total flow rate and calibrations must be performed as necessary and at least quarterly. The Control Officer may for good cause change the specifications above.
5. All monitoring records and calibration information must be made readily accessible to District staff upon request.

Once an "in-house" program has met District approval it shall be implemented.

E. Participation by the Applicant in a cooperative continuous emission monitor development program will be deemed acceptable in place of Part 12.D above provided the goals and

requirements set forth are the same as those identified in 12.D.1 through 12.D.4 and it is submitted within a reasonable period of time (target date approximately January 14, 1983). Such a cooperative program must first meet NSCAPCD approval prior to it being implemented. Since such a venture willing to offer its assistance in obtaining relief from any applicable time restrictions provided the Applicant and cooperative partners demonstrate adequate commitment to such a program.

- F. Within 60 days after completion of the program described in 12.D or 12.E, Applicant shall submit a final report to the District on the availability of acceptable continuous monitors which satisfy criteria 12.D.1 through 12.D.4. Within 30 days of receipt of the report, the Control Officer shall determine whether or not such monitors are available and should be installed at Unit 20.
 - G. Any dispute relative to this Condition 12 may be heard before the Hearing Board of the NSCAPCD and such resulting decision shall be honored.
13. Participation by the Applicant in the Geysers Air Quality Monitoring Program (GAMP) shall be deemed to satisfy all the ambient air quality monitoring requirements of the DOC. However, (1) if the Applicant does not participate in such program or (2) if the Applicant does participate and GAMP is completed prior to completion of the equivalent of one full year of ambient monitoring after Unit 20 begins initial start-up, then the Applicant can be required by the Control Officer to install and operate one H₂S/meteorological monitoring station/TSP High Volume station at a location approved in advance by the Control Officer for a period not to exceed two consecutive years beginning one year prior to the power plant's initial start-up (July 1985 unless the Applicant has bonafide reasons based upon construction delays). Credit for participation in GAMP shall be given toward the two years requirement for any time overlaps relative to the initial start-up time.
14. Within 90 days after the scheduled commencement of commercial operation the Applicant shall file with the District an application for a Permit to Operate together with all appropriate information.
15. Once construction has been completed and operation has commenced all equipment must be properly maintained and operated and kept in good working condition at all times.

Verification: PGandE shall provide the CEC with copies of all reports relating to Unit 20 submitted to the NSCAPCD and copies of all notices relating to Unit 20 received from NSCAPCD.

1-3. PGandE shall obtain written approval from both NSCAPCD and CEC before using any abatement systems other than the hydrogen peroxide/catalyst and Stretford/surface condenser, as approved in the CEC certification, to control H₂S emissions.

Verification: PGandE petition the CEC for an amendment to the CEC certification. CEC in consultation with the NSCAPCD shall issue a written approval for any changes granted prior to beginning construction of any alternative H₂S emissions abatement system.

1-4. DOC Condition 10 requires submittal of a detailed plan for testing the performance of the Unit 20 H₂S emissions abatement systems at normal full load operation. If continuous H₂S monitors are available as described in DOC Condition 12, PGandE shall ensure that the detailed plan includes the following test parameters: (1) the test data shall reflect a minimum of 80 percent of the gross electricity-generating capacity, and (2) in the event that at least 30 days of qualifying data could not be obtained during the 90-day test period specified in the Determination of Compliance, PGandE shall continue to collect test data until the required information has been obtained. The application for a Permit to Operate shall be filed as specified in DOC Condition 14.

Verification: PGandE shall provide the CEC with a copy of the detailed plan submitted to the NSCAPCD for review and approval and a copy of the plan as approved. In addition, if the test period extends beyond the initial 90 days after commercial operation, PGandE shall file a supplementary report with the CEC and the NSCAPCD which reflects all the results of the performance test.

1-5. NSCAPCD can require PGandE to install and operate one ambient monitoring station (with TSP) for H₂S for a one-year period before initial operation and one year after initial operation in a manner to be specified by the NSCAPCD in consultation with LCAPCD, ARB, and CEC. To meet this requirement, PGandE can participate in the Geysers Air Monitoring Program (GAMP) if it is implemented. If the GAMP ends before completing the equivalent of the above, the NSCAPCD can require PGandE to continue monitoring to meet the requirement.

Verification: If PGandE participates in GAMP, PGandE shall notify the CEC. If PGandE does not participate in GAMP, PGandE shall submit to the NSCAPCD, ARB, and CEC, for their review, a detailed H₂S ambient monitoring plan at least 60 days before the monitoring begins.

Section 2: PUBLIC HEALTH

A. Applicable Laws, Ordinances, Standards, and Practices

- o California Administrative Code, Title 8, Article 110, Section 5208.
- o California Labor Code, Chapter 3, Sections 6400 and 6401.
- o California Administrative Code, Title 17, Section 30355.
- o California Health and Safety Code, Section 25607.
- o California Public Resources Code, Section 25532.

B. Requirements

- 2-1. PGandE shall conduct quarterly sampling and analysis of radon-222 concentrations either: (1) in noncondensable gases entering the power plant in incoming steam; (2) in vent off-gas; or (3) in the condensate, in accordance with the most recent California Department of Health Services, Radiologic Health Service (CDHS/RHS) requirements for monitoring and reporting on radon-222.

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 20 is well within applicable standards, the monitoring program may be modified, reduced in scope, or eliminated, provided PGandE obtains the permission of CDHS/RHS. With concurrence of PGandE and CDHS/RHS, changes may be made to the program as new information and techniques become available.

Verification: PGandE shall provide annual reports to CDHS/RHS and CEC summarizing the results of the quarterly sampling. The annual report will comply in format and content with the most recent CDHS/RHS requirements for reporting.

- 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 of sample results to CDHS/RHS within 30 days of confirmation of levels in excess of 3.0 pCi/liter radon-222 in the cooling tower exhaust.

- 2-3. If the radon-222 concentration exceeds 6.0 pCi/liter in the cooling tower exhaust, PGandE shall notify the CDHS/RHS and the CEC by telegram or telephone upon confirming the sample result. The sample result shall be confirmed by reanalyzing the sample using the normal analysis procedure. The reanalysis may be performed by PGandE, CDHS/RHS, or other qualified laboratories. Confirmation of sample results must be accomplished in the most expedient manner possible and should take less than five calendar days.

Verification: PGandE shall notify CDHS/RHS and the CEC within 24 hours of confirming the sample. PGandE shall provide an advisory report to CDHS/RHS and the CEC within 30 days outlining corrective actions taken.

- 2-4. PGandE shall conduct ambient monitoring for arsenic, mercury, silica, vanadium, ammonia, benzene, boron, and radon-222 for a one year period before initial operation and one year after initial

operation, at Anderson Springs in an equivalent manner to that in the Geysers Air Monitoring Program (GAMP). This program may be reduced in scope upon agreement by CEC, NSCAPCO, and PGandE. PGandE can participate in the GAMP, if it is implemented, to meet this requirement. If the GAMP ends before completing the equivalent of the above, the NSCAPCO and CEC can require PGandE to continue monitoring to meet the requirement.

Verification: If PGandE participates in GAMP, PGandE shall notify the CEC. If PGandE does not participate in GAMP, PGandE shall submit to the NSCAPCO, CARB, and CEC, for their review, a detailed ambient monitoring plan at least 60 days before the monitoring begins.

- 2-5. PGandE shall design and perform a program of quarterly steam analysis for ammonia, arsenic, mercury, silica, boron, benzene, fluoride, and asbestos in steam entering Unit 20. The quarterly steam analysis program shall commence within 45 days after commercial operation of Unit 20 and shall run for 1 year. After one year, the NSCAPCO, in consultation with CEC, shall determine if annual testing is sufficient.

Verification: PGandE shall submit the program design to the CEC staff, NSCAPCO, and CARB for approval 60 days prior to commercial operation. PGandE shall submit steam reports and analysis to the CEC staff, NSCAPCO, and the CARB. Such reports shall be submitted within 60 days of the quarterly sampling.

2-6. In the second year of commercial operation, PGandE shall perform measurements to determine concentrations of mercury and arsenic in Unit 20 incoming steam and cooling tower exhaust. Calculations will be made to quantify the incoming and emission rates (in pounds per hour) of arsenic and mercury. PGandE will prepare a report on these measurements and calculations. The report will describe sampling and analysis methods used, identify the error associated with these methods, and list all assumptions used in the calculations.

Verification: PGandE shall send a report on the mercury and arsenic measurements and calculations to CEC staff, CARB, and NSCAPCO within 60 days after completing the measurements. The program results will be evaluated to determine requirements, if any, for continuation of this program.

2-7. PGandE shall request the CAL/OSHA Consultation Service or CAL/DOSH to review the accident prevention program for Unit 20. If detectable levels of asbestos are found in the Unit 20 steam supply, PGandE shall request the involvement of the CAL/OSHA Consultation Service in determining the need for and, if necessary, designing a program to protect worker health from possible exposure to asbestos.

Verification: Within 30 days of detecting asbestos in the Unit 20 steam supply, PGandE shall submit to the CEC a copy of the letter to CAL/OSHA Consultation Services requesting their involvement in the design of a program to protect worker health from possible exposure to asbestos, if necessary.

Prior to commercial operation, PGandE shall submit to the CEC a copy of a letter from the CAL/OSHA Consultation Service or CAL/DOSH verifying the adequacy of PGandE's accident prevention program for Unit 20.

- 2-8. PGandE shall promptly fund reasonable studies or tests as required by the NSCAPCO to ascertain the impact of Unit 20 when operating, specifically at the residence located approximately 0.6 miles south and west of the plant site, in the event that the residents, in good faith, file complaints with the NSCAPCO or the CEC indicating the air quality is worsening or becoming a nuisance or unhealthful as a result of Unit 20's operation. Reasonable mitigation steps shall be applied upon request of the NSCAPCO to attempt to remedy any unlawful impacts of the power plant upon the residence.

Within 60 days after certification of Unit 20, PGandE shall post the notice shown below to residents of the Beigel Cabin. PGandE shall also ensure that the notice contains the most recent address and telephone number of the NSCAPCO.

NOTICE TO OCCUPANTS OF THE BEIGEL CABIN

Pacific Gas and Electric Company (PGandE) has received a permit to construct and operate Geysers 20, a geothermal power plant located approximately 0.6 miles northeast of this cabin. As a means of mitigating possible air pollutant impacts, should they occur, the California Energy Commission (CEC) staff and PGandE have agreed to the following condition:

"PGandE shall promptly fund reasonable studies or tests as required by the Northern Sonoma County Air Pollution Control Officer (NSCAPCO) to ascertain the impact of Unit 20 when operating, specifically at the residence located approximately 0.6 miles south and west of the plant site, in the event that the resident, in good faith, files complaints with the NSCAPCO or the CEC indicating the air quality is worsening or becoming a nuisance or unhealthful as a result of Unit 20's operation. Reasonable mitigation steps shall be applied upon request of the NSCAPCO to attempt to remedy any unlawful impacts of the power plant upon the residence."

Any questions or complaints that the air quality is worsening or becoming a nuisance or unhealthful should be directed to:

Northern Sonoma County Air Pollution
Control Officer
118 North Street
Healdsburg, CA 95448
(707) 433-5911

Verification: PGandE shall indicate in a periodic compliance report the date the notice was posted at the Beigel Cabin. PGandE shall forward to the CEC copies of all correspondence with the NSCAPCO and cabin owner regarding complaints, studies or tests, and mitigation measures related to Unit 20.

Section 3: SOCIOECONOMICS/LAND USE/TRANSPORTATION/AESTHETICS

A. Applicable Laws, Ordinances, Standards, and Practices

- o Warren-Alquist Act, Public Resources Code Section 25540.3.
- o California Environmental Quality Act, Public Resources Code, Section 21100.
- o Sonoma County General Plan (1978), Sonoma County Zoning Ordinance.

B. Requirements

3-1. PGandE shall negotiate with Sonoma County in good faith concerning housing impacts as specified in the October 1, 1982, agreement between those two parties, contained as Appendix C of the Commission Decision. Construction of Geysers Unit 20 shall not commence until agreement is reached between PGandE and the County, and the Commission ratifies such agreement, or until the Commission itself resolves the issues.

Verification: Should PGandE and Sonoma County negotiate settlement of the housing impacts issue, PGandE shall immediately file the fully executed agreement thereto with the Commission and its Compliance Audit Unit.

3-2. PGandE shall comply with the terms of the "Schools Impact Mitigation Agreement" (Appendix D of the final Decision).

Verification: PGandE shall annually file a report with the CEC indicating actions undertaken to comply with the terms of the "Schools Impact Mitigation Agreement."

- 3-3. PGandE shall select appropriate colors for its steamline coverings and main structures to minimize the contrast with the surrounding environment.

Verification: After project completion, PGandE shall submit a letter to the CEC verifying compliance with this requirement.

- 3-4. PGandE shall revegetate all land surfaces disturbed by construction of Unit 20, including all cut and fill slopes as proposed in AFC Section 5.4.3.6. et seq., to soften excavation scars.

Verification: After project completion, PGandE shall submit a letter to the CEC verifying compliance with this requirement.

- 3-5. PGandE shall, to the maximum extent feasible, provide incentives intended to reduce passenger vehicle traffic related to Unit 20. Such measures may include, but are not limited to, car/van pooling, restricted parking, and ride-sharing.

Verification: Thirty days prior to the start of construction, PGandE shall provide the CEC, Lake County, and Sonoma County with a description of its incentive program. One year later, PGandE shall provide the CEC, Lake County, and Sonoma County with an evaluation of the program, including a description of the efforts and progress made and a statement of PGandE's recommendations for change, if necessary.

- 3-6. PGandE, in order to mitigate potential conflicts between truck and Middletown Unified School District bus traffic, shall request

contractors (or their delegate agents) to schedule truck trips so as to minimize truck traffic in the vicinity of the Highway 175-Anderson Springs Road intersection within plus or minus 15 minutes of the scheduled arrival time of the Middletown Unified School District bus. For the purpose of determining school bus arrival times, PGandE shall maintain communication with the Middletown Unified School District. PGandE shall provide contractors with a document that informs them that the Unit 20 certification requests that they schedule truck traffic to avoid the vicinity of the Highway 175-Anderson Springs Road intersection by trucks at times when Middletown Unified School District buses are scheduled to pick up or deliver school children. The document shall specify the time periods during which traffic is to be minimized.

Verification: Thirty days prior to the start of construction, PGandE shall provide to the CEC and the Middletown Unified School District copies of the document being provided contractors and subcontractors.

- 3-7. Pursuant to the terms of its October 1, 1982, agreement, PGandE shall attempt to reach a contingency agreement with Sonoma County to pay for mitigation of damage or increased safety hazards to Healdsburg-Geysers Road or any other public road which is caused by actual use by truck traffic (three axles or greater) for PGandE Unit 20. PGandE shall also negotiate with the County of Lake and attempt to reach a contingency agreement. For purposes of this requirement, the term "contingency agreement" shall mean any formal agreement

between the parties. In the event that the parties are unable to reach agreement as required herein, this matter shall be referred to the CEC for resolution, as specified in the October 1, 1982, agreement (Appendix C of the Commission Decision).

Verification: Thirty days prior to the start of construction, PGandE shall send CEC copies of the above listed contingency agreements.

- 3-8. During the period of construction, PGandE shall arrange for each guard station leading into the Geysers power plant to maintain a log showing the number of trucks (three axles or greater) going to the Unit 20. At Gate 1, the log shall record whether the trucks used Healdsburg-Geysers or Cloverdale-Geysers road. Such other record-keeping mechanisms as may be negotiated between Lake County/Sonoma County and PGandE may be used in lieu of this procedure with the approval of the CEC.

Verification: PGandE shall maintain the logs for a period of three years. These logs shall be made available, on reasonable notice, to the CEC, Lake County, or Sonoma County for inspection.

Section 4: CULTURAL RESOURCES

A. Applicable Laws, Ordinances, Standards, and Practices

Federal:

- o National Historic Preservation Act of 1966 (as amended) and implementing regulations.
 - 16 U.S.C. 470 et seq.
 - 36 CFR 800.
- o Public Law 95-341 (American Indian Religious Freedom).
- o Public Law 96-95 (Archaeological Resources Protection Act, 1979) and 36 CFR, part 69.

State:

- o California Environmental Quality Act (CEQA), PRC sections 21000 et seq.

B. Requirements

4-1. PGandE shall designate a qualified cultural resources specialist who will be available prior to and during site preparation and construction activities for the Geysers Unit 20 power plant.

Verification: PGandE shall provide the CEC with the name and telephone number of the cultural resources specialist at least 30 days prior to the start of any construction activities.

4-2. PGandE shall continue to maintain the existing fencing around the archaeological site identified as CA-SON-793, located approximately one and one-half miles ENE of the proposed Unit 20 project site.

Verification: PGandE shall annually submit a statement verifying that the fencing around the site has remained intact.

4-3. If previously unidentified cultural resource sites are discovered or unearthed during construction, work in the immediate area will be halted and the designated cultural resource specialist will be consulted to provide an evaluation of the resource. PGandE shall promptly notify the CEC of the resource discovery and work stoppage. Representatives of PGandE, the CEC, and the Anthropology Lab at Sonoma State University shall meet with PGandE's designated specialist within one working day of the notification to discuss the possible mitigation measures. Pending resolution of this matter, construction activity in the resource area shall remain stopped.

Verification: PGandE shall notify the CEC within 24 hours of the resource discovery and the work stoppage.

Section 5: BIOLOGICAL RESOURCES

A. Applicable Laws, Ordinances, Standards, and Practices

Federal

- o Endangered Species Act of 1973 and implementing regulations, 16 USC 1531 et seq., 50 CFR part 17.
- o Federal Regulation Implementing the Geothermal Steam Act of 1970 [30 USC 1001 - 1015 and CFR 270.34(k)].

State

- o Warren-Alquist Act, Public Resources Code, Sections 25003 and 25523.
- o Ecological Reserve Act of 1973 and implementing regulations, Fish and Game Code, Sections 2050 through 2055.
- o California Species Preservation Act of 1976, Fish and Game Code, Sections 900 through 903.
- o California Endangered Species Act of 1970, Fish and Game Code, Sections 2050 through 2055.
- o Fully Protected Species Act, Fish and Game Code, Sections 3511, 4700, 5000, and 5516.
- o Fish and Wildlife Protection and Conservation, Fish and Game Code, Sections 1600 et seq.
- o Native Plant Protection Act of 1977, Fish and Game Code, Sections 1900 et seq.

- o California Environmental Quality Act, Public Resources Code, Sections 21000 et seq.
- o Guidelines for Implementation of the California Environmental Quality Act of 1970, California Resources Code, Sections 15000 through 15203.

B. Requirements

5-1. PGandE shall reduce the potential for erosion as stated in the AFC by:

- o Terracing cut and fill slopes,
- o Lining ditches with gunite,
- o Constructing and maintaining sediment ponds as designated in the AFC,
- o Constructing a berm as described in the AFC,
- o Applying cereal grain straw or rice straw as designated in the AFC,
- o Revegetating all exposed slopes as described in Section 5.4 of the AFC and in the Unit 20 Biological Resource Mitigation and Monitoring Plan,
- o Revegetating approximately 1.7 miles of existing unpaved roads as described in the Monitoring and Mitigation Plan,

- o Protecting the Little Geysers Natural Area as defined in the AFC Appendix J, and
- o Implementing an erosion control program to reduce erosion at the Little Geysers (described in the PGandE and Union Oil proposal to CEC submitted September 1982).

Verification: PGandE shall submit an annual compliance statement to CEC to notify them of the status of each of the above items. CEC may, at its discretion, choose to inspect the power plant site for compliance and effectiveness.

- 5-2. PGandE shall participate in the KGRA Aquatic Resources Monitoring (ARM) program to determine the effect on the aquatic environment of constructing Geysers Unit 20. If, for any reason, ARM fails to operate as per the written agreement, if this program is not extended beyond its initial two-year period, or if PGandE withdraws from ARM, PGandE shall conduct alternative studies to document the impact of Unit 20 on Big Sulphur Creek for a period of three years after the start of construction.

Verification: CEC will receive ARM reports as a participant in the ARM program. Should PGandE ultimately conduct adequate monitoring separately from the ARM program, compliance statements shall be provided to CDFG and CEC. Within five years after the start of construction, PGandE will submit a final report on the aquatic monitoring study to the CDFG and CEC.

- 5-3. PGandE shall take steps to protect the Little Geysers Natural Area from future disturbance in order to: (1) protect aquatic resources,

and (2) protect the state endangered Geysers panicum (Dicanthelium acuminatum var. acuminatum). This shall be accomplished by:

a. Securing a written agreement from Union Geothermal to avoid all surface disturbance within the Little Geysers Natural Area for the life of Unit 20 (letter from Union Oil to PGandE, August 1982).

b. Monitoring the Dicanthelium population at Little Geysers as described in PGandE's proposal to the CEC dated September 1982.

c. If the plant population is shown to be declining significantly, PGandE will:

(1) Conduct an evaluation of the habitat and habitat requirements of the plant to determine what habitat parameters are necessary for its survival, and

(2) Attempt to determine reasons for the population decline.

If the CDFG determines that the significant decline is likely to be related to Unit 20, then PGandE shall work with CDFG and the CEC to develop and implement appropriate and technically feasible mitigation measures.

CDFG, in consultation with PGandE and the CEC, shall determine whether or not a significant decline has occurred.

d. Attempting to propagate Dicanthelium acuminatum var. acuminatum in a controlled environment (PGandE proposal for erosion control at the Little Geysers submitted to CEC, August 1982).

- e. Reporting annually the population status of Dicanthelium acuminatum var. acuminatum to CEC and DFG, using the DFG field survey form or other equivalent written form (PGandE Proposal to Monitor Hot Springs Panic Grass, dated September 1982).
- f. Obtaining a Memorandum of Understanding from the Department of Fish and Game prior to any work on this state endangered species.

Verification: PGandE shall provide CEC with the following written materials:

- a. A copy of the written agreement with Union to prevent surface disturbance at the Little Geysers Natural Area. (PGandE has already complied with this aspect of verification.)
- b. A detailed study plan of the monitoring program to be carried out at the Little Geysers Natural Area within 60 days of certification.
- c. A copy of the Memorandum of Understanding issued by the Department of Fish and Game within 90 days of certification.
- d. Reports on the status of monitoring including results of population monitoring, propagation efforts, and any mitigation attempts. (PGandE Proposal to Monitor Hot Springs Panic Grass submitted to CEC in September 1982.)

5-4. PGandE shall protect the streptanthus brachiatus and S. morrisonii population that occur near access roads from disturbance due to development of makeup wells for Unit 20 by (1) placing fences along

all S. brachiatus and S. morrisonii population boundaries which border access roads (this fencing may be temporary but shall be in place during development of makeup wells for Unit 20); (2) clearly marking the protection zone on all appropriate engineering drawings; and (3) employing dust control measures during heavy use periods.

Verification: PGandE shall notify CEC in an annual compliance statement that fencing has been completed.

- 5-5. PGandE shall maintain a photo record of the vegetation surrounding the Unit 20 power plant by using false color infrared aerial photography. PGandE shall photograph annually for the first three years of operation and every five years thereafter. If significant changes are noted in the vegetation by PGandE or CEC, the photography will be used to assess changes as compared to the first three years of photography. PGandE and CEC accept that preoperational data from the stress monitoring study for Units 13, 17, and 18 can also be used as baseline data for Unit 20.

*Amended
95-0315-09
01/16/95*

Verification: PGandE shall provide CEC copies of aerial photographs upon written request.

- 5-6. PGandE shall mitigate wildlife habitat loss by the following enhancement measures as specified in the Monitoring and Mitigation Plan (AFC, Appendix J, pp. 21 - 29):

- a. Prescribed burns (to be initiated the first fall season following power plant certification) or participation in the California Department of Forestry Chaparral Management Plan,

- b. Development of three springs,
- c. Development of a wildlife guzzler with annual maintenance and inspection during dry periods to ensure a year-round water supply,
- d. Revegetation with wildlife food and cover plants, and
- e. Construction of two raptor perch sites.

Verification: PGandE shall submit an annual compliance statement to the CEC to notify them of the completion of the above tasks each year until the work is completed. CEC may, at its option, inspect for mitigation implementation.

- 5-7. PGandE shall determine if there is available literature to document the relative value of spot burns for use by various wildlife species as compared to larger burns and unburned chaparral. PGandE will submit a recommendation to the CEC by August 1983 on the adequacy of available literature to describe the value of spot burns. If it is determined that there is insufficient information to determine the value of spot burns, PGandE shall carry out a study to document the value of such techniques to wildlife. If PGandE determines that there is sufficient information currently in existence, PGandE shall document this in a report which shall accompany PGandE's recommendation. CEC, CDFG, and PGandE shall attempt to reach mutual agreement on the recommendations provided by PGandE within 60 days of submittal to CEC. If the parties are not able to agree, CEC, in

consultation with DFG, will then determine whether or not PGandE shall conduct the spot burn study.

Verification: PGandE shall provide CEC a written description of the study proposal, annual reports on study progress, and a final report.

5-8. PGandE shall implement the following mitigation measures which it proposed specifically to compensate for potential impacts to the ringtail.

- a. If any clearing in riparian areas occurs between April 15 and July 1, PGandE will thoroughly survey the area for ringtail den sites and attempt to identify dens being used by breeding ringtail. PGandE shall attempt to assure that breeding ringtail are not in dens during clearing;
- b. PGandE shall avoid where possible all riparian areas not specified for construction in the AFC;
- c. PGandE shall construct five den sites in appropriate areas and maintain them so long as the ringtail retains its protected status under California law but not longer than the life of the power plant. Den sites will be placed after power plant construction is complete. PGandE will check the den sites and near vicinity for ringtail use (by checking for scat, tracks, and other signs) four times a year for a period of three years after installation to see if the dens are being used; and

d. PGandE shall incorporate native plants known to comprise part of the ringtail's diet into the revegetation and erosion control plans for the power plant.

Verification: In a yearly compliance statement, PGandE shall notify CEC when the construction of artificial dens is completed. CEC may, at its option, inspect artificial den sites. PGandE shall notify CEC of the results of den site inspections for ringtail use. Inspections shall be conducted at least four times per year for three years following artificial den construction.

5-9. PGandE shall participate in a cooperative study (with other developers in the Geysers area) proposed by BLM to describe the taxonomy, ecology, and rarity for the Streptanthus morrisonii-brachiatus complex.

Verification: PGandE shall provide a written verification of its participation in the BLM study. If the proposed study fails to occur, PGandE shall be relieved of this condition. All reports resulting from this study shall be submitted to CEC when completed.

5-10. A PGandE biologist will be assigned to monitor construction activities as needed. The PGandE biologist will advise the supervising construction engineer as required of details concerning required mitigation prior to need for its implementation and shall advise the supervising construction engineer as necessary to ensure proper implementation of all mitigation measures. The supervising construction engineer will act on the advice of the assigned PGandE

biologist to correct construction practices which are not in conformance with the compensation/mitigation plan or the terms and conditions of AFC approval to protect biological resources, including temporarily halting construction activities in sensitive areas until corrective action can be taken. If any specific mitigation measure or monitoring program is not implemented, is done incorrectly, or is determined to be substantially ineffective, PGandE, in consultation with CEC and CDFG, will take action to correct the problem.

Verification: PGandE shall inform the CEC and CDFG as soon as possible of difficulties pertaining to this requirement, and PGandE shall submit within 30 days a written report describing the problem and corrective actions taken. PGandE shall submit an annual statement of progress to the CEC and CDFG indicating the various phases of the compensation/mitigation program that have been completed and the progress of ongoing measures. Reporting will be continued until all measures have been completed.

5-11. PGandE may dispose of excess fill from the Geysers 20 power plant site by either:

- a. Using the Socrates Mine as the fill disposal site, incorporating all mitigation measures described in the AFC and other appropriate documents filed during the siting process.

OR:

- b. Developing the off-site disposal site described in PGandE's letter dated January 26, 1983, incorporating the following mitigation measures to avoid significant environmental effects:

1. PGandE shall bench the excess spoil fill slope at 25 foot intervals. Drainage ditches shall be constructed on each bench and shall flow into collector ditches running down the side of the fill slope. Ditches shall be lined with an impervious material and shall be sized to collect all of the runoff from a severe rainstorm of the magnitude known to occur in the Geysers. An energy dissipator shall be placed at the bottom of the collector ditches and shall be adequately sized to prevent erosion from runoff leaving the site.
2. The entire fill slope shall be revegetated to reduce erosion. The site shall be hydroseeded with a mixture similar to that used for the power plant fill slopes. Straw mulch shall be applied at a rate not less than 2000 lb/ac and held in place with either a tackifier on north and each facing slopes or on south and west facing slopes, jute netting may be used or punched straw, incorporated with a studded roller.
3. To reduce the impact upon wildlife species and to reduce erosion on a more permanent basis, PGandE shall revegetate the entire slope with native woody species which may be selected as deemed appropriate from the list of species proposed for revegetation on the Unit 20 fill slope. In addition, a new prescribed burn location shall be identified (to substitute for the one lost should the new spoil

disposal site be developed) if PGandE chooses not to participate in the regional chaparral management plan described in condition 5-6a.

These revegetation efforts will be completed not later than October 1, 1983.

Verification: PGandE shall submit an annual compliance statement to the CEC to notify them of the progress of the above tasks each year until the work is completed. CEC may, at its option, inspect for mitigation.

Section 6: WATER QUALITY/HYDROLOGY/WATER RESOURCES

A. Applicable Laws, Ordinances, Standards, and Practices

- o Federal Clean Water Act.
- o California Water Code, Section 1243 and 1257.
- o Porter-Cologne Water Quality Control Act.
- o California Fish and Game Code, Section 1603.
- o California Administrative Code, Title 23.
- o Water Quality Control Plan, North Coastal Basin (1B).
- o The Code of Sonoma County, Chapter 7, Building Permits.
- o Sonoma County Water Agency, "Drainage Requirements for Grading Permits."
- o Sonoma County Water Agency, "Flood Control Design Criteria," Revised April 1973.
- o International Conference of Building Officials, "Uniform Building Code," Section 7012 (drainage and terracing: size and number, sub-surface drainage, water disposal, and interceptor drains).
- o California Department of Water Resources, Bulletin 195, "Rainfall Analysis for Drainage Design, Volume 1, Short Duration Precipitation Frequency Data," October 1976.
- o James H. Brown, "Hydrologic Design Methods," The Institute of Transportation and Traffic Engineering, University of California, 1965.

- o Ven Te Chow, "Handbook of Applied Hydrology," McGraw-Hill Book Company, 1964.
- o Horace W. King and Ernest F. Brater, "Handbook of Hydraulics," McGraw-Hill Book Company, Fifth Edition, 1963.
- o United States Department of Commerce, National Oceanic and Atmospheric Administration, "Preliminary Probable Maximum Thunderstorm Precipitation Estimates South West States," prepared by John T. Riedel and E. Marshall Hansen, August 1972.
- o United States Department of Interior Corps of Engineers, "Standard Project Criteria for General and Local Storms, Sacramento-San Joaquin Valley, California," April 1971.
- o United States Department of Interior, Geological Survey, "Flow of Springs and Small Streams in the Tecolote Tunnel Area of Santa Barbara County, California Water Supply Paper 1619-R, by S.E. Rantz, 1962.
- o U.S. Geological Surveys, "Magnitude and Frequency of Floods in California," Water Resources Investigation 77-21 by A.O. Waanen and J.R. Crippen, June 1977.

B. Requirements

- 6-1. If PGandE uses an H₂S abatement system, PGandE shall ensure that any chemicals will be stored within the bermed area of the plant site.

Verification: The final design plans and "as-built" drawings submitted to the Sonoma County CBO shall reflect the storage facilities for any chemicals stored on site.

- 6-2. To prevent spills of Stretford process material from leaving the immediate vicinity, PGandE shall surround the H₂S abatement process area with an impermeable barrier. Spilled process chemicals shall be drained to a sump where they will be pumped to a chemical storage tank for reuse or off-site disposal at an approved waste disposal site.

Verification: PGandE shall submit final design plans and "as-built" drawings to the Sonoma County CBO incorporating this design requirement.

6-3. Design Aspects to Assure Water Quality

- a. To prevent spills of steam condensate and other materials from leaving the site, PGandE shall construct an impermeable concrete or asphaltic concrete retention barrier around the plant. PGandE shall also pave the site with 2 inches of asphaltic concrete and attain a permeability of at least 1×10^{-6} cm/sec. As a result of this construction, the paved area of the plant site will serve as a spill retention basin.
- b. PGandE shall design the proposed retention basin referring to the Sonoma County Water Agency "Flood Control Design Criteria," revised April 1973, to determine the rain fall recurrence intervals. The basin will be capable of retaining the maximum condensate spill expected to occur before plant personnel can

correct the cause of the spill. In addition, the design shall accommodate the runoff from a 100-year storm of 30-minute duration.

- c. PGandE shall equip storm water sumps with 100-gallon per minute pumps to return spilled material to the cooling tower basin for reinjection. Should a spill occur which exceeds the capacity of the pumps, PGandE plant personnel shall use portable pumps to remove excess materials.
- d. Alarm systems will notify plant operators when a spill has occurred and when the catch basin pumps have started. PGandE plant personnel shall respond to the alarms within 30 minutes and take measures necessary to correct the problem.

Verification: PGandE shall submit final design plans and "as-built" drawings to the Sonoma County CBO incorporating the design requirements listed in requirements 6-3a, b, c, and d. In addition, the plant superintendent shall file a statement with the CVRWQCB and the CEC at the start of the power plant operations verifying that plant personnel are trained and prepared to handle spills.

- 6-4. PGandE shall ensure that rainwater entering the Stretford process area will not enter surface water or groundwater. PGandE shall use the rainwater in the Stretford process or pump it to the cooling tower overflow structure.

PGandE shall use the steam condensate from the plant for cooling water and reinject any excess into the geothermal reservoir.

Verification: PGandE shall submit final design plans and "as-built" drawings to the Sonoma County CBO incorporating this design requirement.

- 6-5. To minimize the potential adverse impacts of storm runoff on the water quality of the area, PGandE shall route plant site runoff to the cooling tower basin for subsequent injection into the geothermal reservoir. When the capacity of the return system is exceeded, the runoff will be released. Under such conditions, the impacts on water quality should be minimal due to pollutant material dilution from heavy rainfall.

Verification: PGandE shall submit final design plans and "as-built" drawings to the Sonoma County CBO incorporating this design requirement.

- 6-6. PGandE shall dispose of domestic waste water by injection into the reinjection system or other appropriate method. PGandE shall treat the waste in a septic tank to remove solids and then discharge it to the reinjection line at a point between the cooling tower basin and the reinjection well, or implement such other discharge method as is appropriate and in conformity with all applicable laws.

Verification: PGandE shall obtain an in-lieu sanitation permit in accordance with Sonoma County ordinances 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.

6-7. PGandE's participation in the ARM water quality sampling program shall be as described in the KGRA-ARM agreement. Should the ARM program be discontinued, then PGandE shall continue to monitor three years after the start of commercial operation at those stations which reflect potential water quality impacts from the Geysers 20 project, i.e., the stations designated as BSC 13 and BSC 18.

Verification: PGandE shall notify the CEC within 30 days of the discontinuance of the ARM Program and of the implementation of the contingency monitoring at BSC 13 and BSC 18.

6-8. PGandE shall design the on-site sump and discharge pipe to pass a 100-year storm with 30-minute duration.

PGandE shall construct a spill containment barrier around the plant site capable of containing the amount of rainfall expected during a 10-year 30-minute storm.

Verification: PGandE shall submit final design plans and "as-built" drawings to the Sonoma County CBO incorporating these design requirements.

6-9. During heavy rainstorms, when the water level in the retention basin continues to rise to a level that could inundate the road within the yard, PGandE shall be allowed to open the valve and drain the site water into Calm Creek.

Verification: Within 30 days after receipt, PGandE shall forward to the CEC a copy of the waste discharge permit issued by the NCRWQCB.

6-10. PGandE shall design the Calm Creek Channel to pass a 100-year flood flow without overflowing.

PGandE shall procure a stream bed alteration permit from the CDFG before beginning construction in the Calm Creek Channel.

Verification: PGandE shall, prior to construction in the Calm Creek Channel, forward a copy of the CDFG stream bed alteration permit to the CEC Compliance Unit.

6-11. PGandE shall develop the Unit 20 drainage system in accordance with the "Proposed Site Grading Plan" as depicted in AFC Figure 4.4-2.

Verification: PGandE shall submit final design plans and "as-built" drawings to the Sonoma County CBO for the drainage system.

6-12. PGandE shall provide, to all of its contractors working on Geysers Unit 20, a letter documenting the necessary procedures to be followed if any material is spilled into Anderson Creek or Gunning Creek. These procedures are to immediately:

- a. Notify the local police,
- b. Notify the Anderson Springs Community Service District, and
- c. Notify PGandE.

The letter shall include phone numbers for the specific individuals to be contacted in each instance.

Verification: PGandE shall send the CEC a copy of the letters sent to all of its contractors working on Geysers Unit 20.

6-13. PGandE shall supply the Anderson Springs Community Services District with two (2) appropriately sized signs for posting at Anderson and Gunning Creeks which clearly state that the creeks are the source of domestic and recreational waters for Anderson Springs and which contain the telephone numbers of the Anderson Springs Community Services District to be called in case of a spill.

Verification: PGandE shall notify the CEC when it has provided these signs to the District.

6-14. In the event that any vehicle used during the construction process or operating process of Unit No. 20 ejects or releases matter into the waters of Anderson or Gunning Creeks or impedes the natural flow of Anderson or Gunning Creeks, thereby causing adverse impacts to the ASCSD, PGandE will cooperate fully with the CVRWCB, CDF&G, State Health Department or any other appropriate agency investigating the incident, and will expeditiously comply with all applicable regulations of such appropriate agencies in reestablishing the condition of water quality in the Anderson Springs Drainage. PGandE will consult with the ASCSD in developing appropriate actions.

Verification: PGandE shall notify the CEC immediately following an accidental discharge into Anderson or Gunning Creeks and shall provide a description of the problem and necessary corrective actions.

6-15. Prior to the filing of an AFC for the next PGandE Geysers unit in Lake County, PGandE will meet with the ASCSD to discuss their water quality/supply concerns.

Verification: In the next PGandE AFC for a Geysers unit in Lake County, PGandE shall provide the CEC a summary of the meeting including areas of agreement or disagreement regarding the Anderson Springs Community District water quality/supply concerns.

- 6-16. PGandE will maintain the temporary water intake system of Gunning Creek until October 4, 1984.

Verification: PGandE shall notify the ASCSD and CEC at least 30 days prior to the date that PGandE will cease to maintain the temporary water intake system.

- 6-17. PGandE and its contractor(s) shall divert water from the Geysers Development Corporation (GDC) Pond whenever feasible. PGandE or its contractor(s) may divert additional water from Big Sulphur Creek only, consistent with riparian rights, for the period of construction of the Geysers 20 power plant. The flow rates shall not be greater than $0.07 \text{ ft}^3/\text{sec}$ (31.4 gpm), as measured by an accurate and reliable in-line water meter, which shall be installed prior to PGandE removing water from Big Sulphur Creek.

Verification: PGandE shall annually supply the CEC with a monthly tabulation of the amounts (in gallons) of water removed from Big Sulphur Creek for construction use at the Geysers Unit 20 power plant site.

- 6-18. PGandE shall identify the point, approved by the California Department of Fish and Game, at which it will withdraw water from Big Sulphur Creek.

Verification: Within 30 days of commencing water withdrawal from Big Sulphur Creek, PGandE shall forward to the CEC a stream bed alteration agreement from CDFG (if required) or a map, not less detailed than 1:24,000 scale, which clearly shows the point of diversion.

Section 7: GEOTECHNICAL/SEISMIC HAZARDS

A. Applicable Laws, Ordinances, Standards, and Practices

- o California Business and Professions Code 7835.
- o Uniform Building Code (1982 edition), Chapters 29 and 70.
- o Public Resources Code, Sections 25511 and 25532.
- o Good engineering practice.

B. Requirements

7-1. PG&E shall assign a qualified geotechnical engineer to the project to be present as needed (and to work in consultation with the certified engineering geologist) to evaluate actual site conditions by applying the principles of soil mechanics in the investigation, evaluation, design, and construction of site earthwork.

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 PG&E'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 who will be present as needed during all phases of site excavation and grading to: (a) monitor compliance with design intent in

engineering geologic matters; (b) provide consultation during the design and construction of the project; (c) evaluate geologic conditions and geologic safety on the site; and (d) recommend field changes to the responsible civil engineer.

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 PG&E'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 the requirement.

7-3. PGandE shall submit the following documents to the Sonoma County Chief Building Official (CBO):

- o A Soil Grading Report, and
- o A Geologic Grading Report prepared and signed by a certified engineering geologist.

Verification: PGandE shall submit to the CBO the Soil Grading Report and the Geologic Grading Report within 180 days after completion of the rough grading. These reports will be deemed approved by the CBO unless PGandE is notified otherwise within 60 days of receipt. PGandE shall submit a supplementary report to the CBO after completing excavation of all foundations and the finish grading.

7-4. If geologic conditions do not differ substantially from those conditions represented in the AFC, PGandE shall implement the AFC'S recommended mitigation measures for adverse geologic conditions.

Verification: PGandE's certified engineering geologist shall verify compliance with the AFC's recommended geologic mitigation measures in the Geologic Grading Report and "As-Graded" Grading Plan. (See Civil Engineering Requirement 9-2.)

7-5. PGandE shall immediately report to the Sonoma County CBO and the CEC any geologic conditions which deviate enough from those predicted in the AFC to warrant substantial changes in design of site earthwork, power plant facilities, or site viability.

PGandE shall cease earthwork and construction in the affected area (unless safety requires continuing work), pending approval of the revised design by the Sonoma County CBO. PGandE's responsible civil engineer or geotechnical engineer will notify the Sonoma County CBO and the CEC of all such substantial design changes.

Verification: If the revised plans are not approved or disapproved by the CBO within five working days of receipt, the matter shall be considered under the provisions of the Dispute Resolution Procedures.

7-6. PGandE shall ensure that geologic records of site inspections, especially detailed logs of excavated surfaces, will be made during site preparation and submitted to the CEC upon request.

Verification: PGandE shall notify the CEC of the availability of geologic records of site inspections in the periodic progress reports.

Section 8: SOILS

A. Applicable Laws, Ordinances, Standards, and Practices

- o Porter Cologne Water Quality Control Act and in connection therewith, "Waste Discharge Requirements for Nonsewerable Waste Disposal to Land," published by the California Water Resources Control Board, particularly Appendix A, pg. 63, "Sample Waste Discharge Requirement for "Soil Disturbance-Earthen Materials."
- o North Coastal Basin (I) Water Quality Control Plan, Part 1, Chapter 5, particularly the section dealing with "Action Plan for Logging, Construction and Associated Activities."
- o Sonoma County Water Agency "Drainage Requirements for Grading Permits."
- o International Conference of Building Officials, "Uniform Building Code," 1982, Sections 7009 (limitations on cut slope steepness), 7010 (fill slopes: location, preparation, types of material, compaction, slope drainage, and terracing), 7011 (set back), 7012 (drainage and terracing: size and number, subsurface drainage, water disposal, and interceptor drains), and 7013 (erosion control: slopes, erosion, and control devices).
- o United States Department of Agriculture, Soil Conservation Service, "Guides for Erosion and Sediment Control in California," Davis, California, January 1975.
- o V.C. Miller, "Soil Survey of Sonoma County, California," USDA, Soil Conservation Service, 1972.

B. Requirements

8-1. PGandE shall install two sedimentation ponds as described in AFC Figure 4.4-3 and in accordance with an agreement with the CDFG.

Verification: PGandE shall supply to CEC a copy of any agreement negotiated with CDFG or a written explanation of why such an agreement was not consummated.

8-2. PGandE shall keep record of the cubic yards of sediment removed from both sediment basins during the first five such removal operations, beginning with the first such removal after site preparation. The CEC staff and PGandE may agree to suspend such monitoring if the staff is convinced that sufficient data has been obtained.

Verification: PGandE will submit to CEC an annual report stating the cubic yards of sediment removed from each pond.

8-3. Prior to placement of fill at the power plant site or the alternate spoil disposal site PGandE or its contractor shall contact the North Coast Regional Water Quality Control Board to determine the need for waste discharge permit(s) covering the plant and spoil disposal site. If permit(s) are required PGandE or its contractor shall forward a copy of the permit to CEC. If the Board does not require a permit PGandE or its contractor shall so notify the CEC.

Verification: PGandE or its contractor shall inform the CEC of contacts made with the North Coast Regional Water Quality Control Board and the need to procure a discharge permit(s). If discharge permit(s) are issued, PGandE or its contractor shall forward copies of the permit(s) to the CEC Compliance Section.

8-4. PGandE or its contractor shall implement erosion and sediment control measures at the power plant site and the alternate fill disposal site equivalent to those described in the AFC.

Verification: Upon reasonable notice, CEC compliance and monitoring staff shall be allowed access to the power plant site and the alternate fill disposal site by PGandE or its contractor to verify that the mitigation measures are in place and effective.

8-5. PGandE shall comply with NCRWQCB waste discharge specifications governing freeboard for sediment ponds.

Verification: PGandE shall submit to the CEC copies of correspondence between PGandE and the Regional Board or any permits which address the question of adequate sediment pond freeboard.

8-6. PGandE shall continue to monitor streambed sediment composition for the power plant site and steam field as a participant in the KGRA ARM program. If the ARM program is not extended beyond its initial two year period, PGandE shall develop an appropriate site-specific monitoring plan.

Verification: PGandE shall either continue to submit ARM monitoring data to CEC or the results of an independent, site monitoring effort.

8-7. PGandE and its contractor(s) shall confine earth-moving activities connected with the power plant site and spoil disposal site to the period May through October. CEC delegates authority to approve deviations from this schedule to Sonoma County.

Verification: PGandE or its contractor(s) shall notify the CEC before the fact and in writing of any proposal for earth moving outside of the May-October time frame. PGandE or its contractor(s) shall forward to the CEC copies of correspondence from Sonoma County which approve any deviation from the dry season construction schedule.

Section 9: CIVIL ENGINEERING

A. Applicable Laws, Ordinances, Standards, and Practices

- o Uniform Building Code (UBC) (1982).
- o Sonoma County Ordinance 2395.
- o American Concrete Institute (ACI) Standard 318-77, "Building Code Requirements for Reinforced Concrete."

B. Requirements

9-1. PGandE shall submit two sets of the final design grading plans, geotechnical investigation reports, specifications, and calculations to the Sonoma County CBO for review at least 90 days prior to construction. PGandE's responsible civil engineer and PGandE's certified engineering geologist shall verify that the proposed grading plans, including accompanying reports, comply with the requirements set forth in the applicable laws, ordinances, and standards. PGandE shall make payments to Sonoma County equivalent to the fees listed in Chapter 70, Section 7007 of the UBC for review of the grading plans and calculations. The CBO shall check the plans, specifications, and calculations in accordance with the county's plan check procedures. If the plans do not comply with the UBC and/or other pertinent laws, ordinances, or standards, the CBO shall notify PGandE's civil engineer within 30 days of submittal, identifying all discrepancies for correction. Within 60 days of the original submittal, PGandE shall submit revised plans to the CBO rectifying

all discrepancies. PGandE shall do no grading until the corrections are accepted and the requirements are met.

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 a grading permit. PGandE shall notify the CEC within 5 days following receipt of the grading permit.

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

- o A summary of Soils Compaction Tests;
- o A Soil Grading Report;
- o A Geologic Grading Report signed by a certified engineering geologist;
- o "As-Graded" Grading Plan. (PGandE's responsible civil engineer shall certify on the "As-Graded" Plan that all site earthwork was done in accordance with the approved final grading plan, including subsequent change orders, and that it satisfies the design intent); and
- o A final report and site approval signed by a civil engineer.

Verification: All submittals listed above shall be submitted by PGandE within 180 days after completion of the rough grading. These documents will be deemed approved by the CBO unless PGandE is

notified otherwise within 60 days of receipt. PGandE shall submit a supplementary report to the CBO after completing both the excavation of all foundations and the finish grading.

- 9-3. PGandE shall prepare and submit a copy of the monthly summary of construction progress to the Sonoma County CBO and the CEC.

Verification: These periodic construction progress reports shall be submitted monthly until the unit has started commercial operation.

- 9-4. PGandE shall prepare and submit to the Sonoma County CBO one copy of the "as-built" drawings for the construction of civil work.

Verification: "As-built" drawings of the construction of civil work shall be submitted by PGandE within 180 days after completion of such work.

- 9-5. PGandE shall comply with all the recommendations (e.g., removal of all old landslide debris in the foundation area of the disposal fill on the west side of the site) in the Harding-Lawson Report (Geotechnical Investigation Element II, Proposed Site 18, Geothermal Power Plant Unit 20, The Geysers Geothermal Area, Sonoma County, California, November 30, 1981) if the conditions are substantially similar to those predicted in the report.

Verification: PGandE shall verify compliance by means of the grading reports submitted to the Sonoma County CBO.

- 9-6. PGandE shall ensure that appropriate erosion control mitigation measures are implemented when stabilizing the cut and fill slopes in the plant site area and related access roads.

Verification: PGandE's Chief Civil Engineer shall provide the CEC with a statement of the implemented mitigation measures in a periodic compliance report.

- 9-7. On-site inspections shall be performed in accordance with Chapter 3 of the UBC. Inspection shall be done by the Sonoma County CBO or his agent. Inspections may be delegated by the CBO as provided in Chapter 3 of the UBC.

Verification: If the inspector finds that work is being done in accordance with the approved plans, he shall report this in a monthly report to the CBO and CEC. 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.

- 9-8. The embankment at the spoil disposal site shall be designed and constructed in accordance with the Uniform Building Code (latest adopted edition) as adopted by Sonoma County in County Ordinance 2395.

Verification: PGandE shall notify the CEC Compliance Unit, by letter, of the issuance of the grading permit within 30 days of issuance.

Section 10: STRUCTURAL ENGINEERING

A. Applicable Laws, Ordinances, Standards, and Practices

Law:

- o Title 8, California Administrative Code, adopting American Society of Mechanical Engineers' Boiler and Pressure Vessel Code (ASME BPV Code).
- o Title 24, California Administrative Code, adopting the Uniform Building Code (UBC) as minimum legal building standards.
- o Chapter 7, Division 3, Business and Professions Code, requiring state registration to practice as a civil engineer or structural engineer in California.

Ordinances:

- o Sonoma County 2395.

Standards:

- o Uniform Building Code, 1982 Edition (UBC 82).
- o American Society of Mechanical Engineers' Boiler and Pressure Vessel Code.
- o American National Standards Institute (ANSI), "B 31.1 Power Piping Code."
- o American Concrete Institute (ACI), "Building Code Requirements for Reinforced Concrete" (ACI 318-77) and Supplement of Provisions through 1981.

- 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) and Supplement through 1981.
- o American Institute of Steel Construction (AISC), "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings" (AISC SDFESS 78).
- o AISC, "Commentary on the Specifications of the Design, Fabrication, and Erection of Structural Steel for Buildings" (AISC CSDFESS 78).
- o AISC, "Specification for Structural Joints Using ASTM, A325, or A490 Bolts," April 1978 (AISC SST 78).
- o AISC, "Code of Standard Practice for Steel Buildings and Bridges," September 1976 (AISC CSPSBB 76).
- o American Welding Society, "Structural Welding Code AWS D1.1-82" (AWS D1.1-82).
- o AWS, "Reinforcing Steel Welding Code" (AWS D12.1-75).
- o "National Design Specification for Stress-Grade Lumber and Fastenings, 1977" (NDS 77).
- o American Institute of Timber Construction, 1974, "Timber Construction Standards," AITC-100.

- o American Iron and Steel Institute (AISI), "Specification for the Design of Cold-Formed Steel Structural Members," 1968 (AISI SDCFSS).
- o Steel Joist Institute, "Standard Specifications and Load Tables," (SJI SSLT), 1982.
- o American Association of State Highway and Transportation Officials, "Standard Specifications for Highway Bridges," 1977 Edition (AASHTO Bridge 77).
- o Cooling Tower Institute, "CTI Code Tower, Standard Specifications for the Design of Cooling Towers with Douglas Fir Lumber," 1978 (CTI STD 114-78).
- o ACI, "Code Requirements for Nuclear Safety Related Structures," "The methods set forth in Appendix B, Steel Embedments," ACI 349-76, adopted August 1979."

In addition, the following standards shall be used as guides in the final design of the power plant and related facilities:

- o Structural Engineers Association of California, "Recommended Lateral Force Requirements," 1980 recommendations and commentary.
- o Applied Technology Council, "Tentative Provisions for the Development of Seismic Regulations for Buildings" (NBS-SP-510, ATC-3-06).

B. Requirements

- 10-1. PGandE shall demonstrate that the final design plans, design calculations, and specifications conform with the criteria

and requirements set forth in the Conditions in the Final Decision. Final plans, as used herein, are the plans upon which the construction will be based (i.e., used for bid purposes).

Verification: PGandE shall certify to the CBO and CEC that the final plans and specifications conform to the requirements listed herein.

10-2. PGandE shall design and construct Geysers Unit 20 and its related facilities to be in conformance with the applicable laws, ordinances, standards, and practices set forth above, and with the information, criteria, and methods set forth in the following documents:

- o PGandE Geysers Unit 20 AFC, Sections 4.3.3. and 4.4, and Appendix D; and
- o PGandE responses to staff's first set of data requests dated June 1982.

In the case of discrepancies between the design criteria contained in the applicable laws, ordinances, standards, practices, or conditions of certification, PGandE shall design to the highest calculated loads using the lowest allowable stresses in the final design of the facility.

PGandE shall specify and use design stresses for the proposed wooden cooling tower structure in accordance with CTI 114-78. In addition, PGandE shall emphasize UBC Section 2312(e)3 regarding appropriate assumptions of lateral force distribution. PGandE shall design and construct bolted and/or welded anchorages on H₂O₂, acid, caustic,

and chelating agent tanks in accordance with ATC 3-06, Sections 8.3.1 through 8.3.3 using Eqn. 8-2 with a value of 1.0 for the coefficient "p."

PGandE shall design and construct tanks containing H_2O_2 , acid, caustic, and chelating agent, or the containment surrounding these tanks, in accordance with API 650, Sixth Edition, Revision 3, including Appendix E.

PGandE shall design piping, valves, and anchorages to withstand equivalent static loads (ESL) in accordance with ANSI B31.1. The ESL shall be as specified in PGandE responses to CEC's first set of data requests, dated June 1982.

Verification: At least 120 days prior to the intended start of construction of each structure or foundation, PGandE shall submit 2 sets each of final (i.e., bid) design plans, specifications, and calculations for each structure or structure foundation, to the Sonoma County CBO and to the CEC. The final plans, calculations, and specifications shall clearly reflect the inclusion of approved criteria, assumptions, and methods used to develop the design. PGandE shall certify to the CBO and the CEC that the final plans and specifications conform to the listed requirements. PGandE shall make in-lieu payments to Sonoma County equivalent to the fees set forth in Sonoma County's plan check fee schedule, and obtain an in-lieu building permit for each submittal. The CBO, in consultation with the CEC, shall review the plans, specifications, and calculations.

If the CBO discovers nonconformance with the stated requirements, he shall notify PGandE's responsible Structural Engineer or Chief Civil Engineer within 75 days of the submittal date and shall return that nonconforming portion of the plans to PGandE for correction. PGandE's responsible Structural Engineer or Chief Civil Engineer shall resubmit the corrected plans within 30 days of the return to PGandE of the nonconforming submittal. The CBO shall return one complete set of original or revised submittals stamped and signed with his approval to PGandE within 120 days of original submittal, provided the plans comply with the stated requirements. "Certification" or "certify" as used herein means:

- a. All structural plans, calculations, and specifications shall be signed and stamped by the responsible registered structural engineer who shall have the authority to use the title "Structural Engineer" in California, or the responsible registered California civil engineer who shall be fully competent and proficient in the design of comparable power plant structures. All piping plans, stress calculations, and specifications shall be signed and stamped by the responsible registered mechanical engineer. A California registered professional engineer is required to work only within his or her area of professional competence as set forth in California Board of Registration of Professional Engineers Rule 415.
- b. The structural plans, calculations, and specifications shall be accompanied by a letter signed by PGandE's Chief Civil Engineer certifying that the design conforms to the requirements listed

herein. The piping plans, stress calculations, and specifications shall be available for review at the PGandE General Office in San Francisco upon seven days notice to the Chief Siting Engineer. PGandE's Chief Mechanical and Nuclear Engineer shall certify in a letter that the design conforms to the requirements listed herein. The letter shall be signed over his California professional registration number to practice mechanical engineering.

10-3. PGandE shall prepare and submit 1 set of the following documents to the Sonoma County CBO within 180 days after completion of construction. The CBO shall review these documents and notify PGandE of his approval of the documents within 60 days of receipt.

- o "As-built" drawings for the construction of structural and architectural work (changes approved by the CBO shall be identified on the "as-built" drawings).
- o Summary of concrete strength tests.
- o Copies of concrete pour sign-off sheets.
- o Bolt torque inspection reports.
- o Field weld inspection sheets.

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

10-4. 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.

- 10-5. PGandE shall file with the Sonoma County CBO and the CEC substantial design changes to the final plans as required by UBC Section 302. "Substantial changes" include all changes requiring an alteration in design concept and preparation of new design plans or design calculations 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 and two sets to the CEC for review and shall notify the CBO at least 15 days in advance of the intended filing. The CBO shall expeditiously review these plans in consultation with the CEC. The CBO shall return 1 set of submittals stamped and signed with his approval to PGandE within 30 days, provided the plans comply with the stated requirements.

- 10-6. Inspections shall be performed in accordance with Chapters 3 and 70 of the Uniform Building Code (1982 edition). The Sonoma County CBO may delegate responsibility for special and continuous inspections to PGandE as provided in Section 305, Chapter 3, of the UBC 1982. The CBO or his agent and the CEC may, upon reasonable notice, inspect the construction at any time.

Verification: PGandE shall notify the CEC if the Sonoma County CBO delegates responsibility for inspections to PGandE. In addition, PGandE shall assign a resident civil engineer, who shall be present on site to monitor construction activities and who shall have authority to require changes or remedial work if the work does not conform to the applicable requirements and to halt construction in the affected area if the work does not conform to these requirements.

10-7. In the event that the Uniform Building Code (1982 edition) is not adopted prior to the final plans submittal by either the state under Title 24 CAC or by Sonoma County ordinance, PGandE shall verify that the facility design meets or exceeds the requirements of UBC 1979.

Verification: In the event that final plans have been submitted for review prior to the adoption of UBC 1982, PGandE shall file a statement by the responsible engineer to the CEC verifying conformity of the submitted plans with UBC 1979.

Section 11: SOLID WASTE MANAGEMENT

A. Applicable Laws, Ordinances, Standards, and Practices

- o California Water Code, Section 13260.
- o California Health and Safety Code, Division 20, Chapter 6.5.
- o California Administrative Code, Title 22, Division 4, Chapter 30; Title 23, Chapter 3, Subchapter 15.
- o Federal Resources Conservation and Recovery Act.

B. Requirements

11-1. PGandE shall ensure that any hazardous waste hauler employed by PGandE has a certificate of registration from the California Department of Health Services (CDOHS), Hazardous Materials Management Section.

Verification: PGandE shall keep a letter on file verifying that hazardous wastes haulers for the Geysers 20 project have valid CDOHS certificates of registration.

11-2. The Stretford process wastes include a sulfur and a Stretford purge stream. PGandE shall ensure that the sulfur is properly stored in accordance with CDOHS regulations, and removed periodically to be sold or to be disposed at a site approved for such wastes.

Any sludge which accumulates in the cooling tower basins will be removed and hauled by a registered hazardous waste hauler to an approved disposal site.

Verification: PGandE shall submit final design plans and "as built" drawings to the Sonoma County CBO incorporating these storage design features. In addition, PGandE shall each month submit completed hazardous waste manifests to CDOHS in compliance with Section 66475 to Title 22, CAC.

- 11-3. PGandE shall ensure that hazardous wastes are taken to a facility permitted by CDOHS to accept such wastes.

Verification by 05/05/08 { Verification: PGandE shall notify the CEC, CDOHS, and Solid Waste Management Board of the selected disposal site. Any notice of change in disposal sites will be submitted as changes occur.

- 11-4. If hazardous wastes, including Stretford sulfur effluent, are stored on site for more than 60 days, PGandE shall obtain a determination from the CDOHS that the requirements of a hazardous waste facility permit have been satisfied.

Verification: PGandE shall promptly notify the CEC if it files an in-lieu application with CDOHS for the operation of a hazardous waste facility.

- 11-5. Construction wastes from Unit 20 will be disposed of by a PGandE contractor at sites approved by the Regional Water Quality Control Board and local agencies.

Verification: As soon as the specific disposal sites are known, PGandE shall submit a letter to the CEC listing the disposal sites to be used. PGandE will provide the CEC a copy of the provision in PGandE contracts requiring compliance with all applicable waste

management laws and regulations designed to protect the public health and the environment.

- 11-6. The sewage wastes include a liquid effluent and sludge. PGandE shall ensure that the liquid effluent is conveyed by pipe to the injection wells and not exposed prior to injection or disposed of by such alternative disposal methods as are consistent with all applicable laws.

Any sludge which accumulates in the sewage system shall be hauled by a liquid waste hauler to an approved disposal site, or disposed of by such alternative disposal methods as are consistent with all applicable laws.

Verification: PGandE shall submit final design plans and "as built" drawings to the Sonoma County CBO incorporating these design features.

- 11-7. PGandE shall comply with all applicable provisions of the Resource Conservation and Recovery Act (RCRA) and the California Hazardous Waste Laws, and shall provide copies of all required documents under said laws to the CEC.

Verification: Within 60 days of filing the appropriate documents with the appropriate agencies, copies shall be filed with the CEC. In the event that the appropriate agency disapproves said documents, the CEC shall be informed as soon as practicable by PGandE.

- 11-8. PGandE shall notify the CEC of any known enforcement actions against PGandE, the waste hauler, or the disposal site operator.

*Approved
01/15/09
91-0215-09*

Verification: Within 10 days of notification of an impending enforcement action, PGandE shall notify the CEC.

Section 12: SAFETY

A. Applicable Laws, Ordinances, Standards, and Procedures

- o Code of Federal Regulations, Title 49, Sections 173.245, 174.249, 173.302, 178.36, and 178.37.
- o Title 8, Article 138, California Administrative Code.
- o Title 8, Section 5162, California Administrative Code.
- o Title 8, Section 5204, California Administrative Code.
- o Title 8, Chapter 4.1, California Administrative Code.
- o Title 8, Article 145, California Administrative Code.
- o Title 8, Group 10, California Administrative Code.
- o Title 8, Article 76, California Administrative Code.
- o Title 8, Article 107, California Administrative Code.
- o Title 8, Section 3203, California Administrative Code.
- o Title 8, Section 5179, California Administrative Code.
- o American Petroleum Institute (API) Standard 650, Sixth Edition, Revision 3, including Appendix E.
- o ASME Pressure Vessel Code, Section VIII.
- o ATC 3-06, Section 8.3.
- o National Fire Code, Sections 20, 30, 51, and 49.

- o Title 8, California Administrative Code, Chapter 4, Subchapter 7, Groups 20 and 27.
- o Uniform Building Code (1982 Edition): 5, 7, 19 (Type II-N), 32, and 33.
- o National Fire Protection Association (NFPA) Standards (1981): 10, 12, 13, 14 (Class II Service), 19B, 20, 26, 27, 30, 70, 214, 231A, 241, 601A, 1961, 1962, and 1963.
- o Title 8, California Administrative Code, Section 1509.

B. Requirements

12-1. PGandE shall comply with the handling procedures for hydrogen peroxide as specified in Title 8, CAC, Section 5204.

Verification: PGandE shall submit a letter signed by the plant superintendent and verifying compliance with CAL/OSHA regulations within 90 days after beginning commercial operation.

12-2. PGandE shall comply with the storage procedures for hydrogen peroxide as specified in Title 8, CAC, Section 5179.

Verification: PGandE shall submit a letter signed by a registered mechanical engineer and verifying compliance with CAL/OSHA regulations prior to commercial operation.

12-3. PGandE shall comply with the handling and transportation procedures for caustic soda as specified in 49 CFR Section 173.249, and Title 8, CAC, Section 5162.

Verification: PGandE shall submit a letter, signed by the plant superintendent and verifying compliance with CAL/OSHA regulations, within 90 days after beginning commercial operation.

- 12-4. PGandE shall comply with the handling and storage procedures for hydrogen gas as specified in Title 8, CAC, Article 138.

Verification: PGandE shall submit a letter signed by the plant superintendent and verifying compliance with CAL/OSHA regulations within 90 days after beginning commercial operation.

- 12-5. PGandE shall ensure that the Stretford system pressure vessels have been designed and fabricated in accordance with Title 8, CAC, Chapter 4.1, and API 650, Sixth Edition, Revision 3, including Appendix E, and anchored in accordance with ATC 3-06, Section 8.3.

Verification: PGandE shall submit a letter, signed by a registered mechanical engineer and verifying compliance to referenced standards, prior to commercial operation. In addition, CAL/DOSH should verify compliance through an on-site inspection.

- 12-6. PGandE shall ensure that the Stretford system tanks have been designed and fabricated in accordance with Title 8, CAC, Chapter 4; and API 650, Sixth Edition, Revision 3, including Appendix E; and anchored in accordance with ATC 3-06, Section 8.3.

Verification: PGandE shall submit a letter signed by a registered mechanical engineer verifying compliance to the CEC prior to commercial operation. In addition, CAL/DOSH should verify compliance through an on-site inspection.

12-7. PGandE shall ensure that the hydrogen peroxide tanks have been designed and fabricated in accordance with MCA Chemical Safety Data Sheet SD-53, and API 650, Sixth Edition, Revision 3 (including Appendix E) and anchored in accordance with ATC-3-06, Section 8.3.

Verification: PGandE shall submit a letter signed by a registered mechanical engineer verifying compliance to the CEC prior to commercial operation. In addition, CAL/DOSH should verify compliance through an on-site inspection.

12-8. PGandE shall ensure that certified code papers for the facility and pressure vessels are available for review at the plant site.

Verification: Prior to commercial operation, PGandE shall notify CAL/DOSH and the CEC of the availability of the documents.

12-9. PGandE shall certify that design and construction are in reasonable conformance with the intent of applicable fire safety codes and standards listed above.

Verification: Prior to commercial operation, PGandE shall submit to the CEC a compliance report which contains certification from a registered fire protection engineer that the project is in reasonable conformance with the intent of the above listed codes and standards.

12-10. PGandE shall submit its construction fire protection plan for Geysers Unit 20 to the California Department of Forestry for approval 45 days prior to scheduled site clearing. The fire protection plan shall be approved 30 days after submission to CDF unless the CEC receives written notification of nonacceptance from CDF.

Verification: Prior to site clearing, PGandE shall submit to the CEC a copy of CDF's written acceptance of PGandE's fire protection plan for Geysers Unit 20.

- 12-11. PGandE shall submit its operation fire protection plan for Geysers Unit 20 to the California Department of Forestry for approval 45 days prior to first turbine roll. The fire protection plan shall be approved 30 days after submission to CDF unless the CEC receives written notification of nonacceptance from CDF.

Verification: Prior to first turbine roll, PGandE shall submit to the CEC a copy of CDF's written acceptance of PGandE's fire protection plan for Geysers Unit 20.

- 12-12. Prior to each major construction phase, PGandE and the California Department of Forestry shall hold sequential preconstruction conferences with contractors who are to perform the next construction activities at Geysers Unit 20.

Verification: A week prior to each preconstruction conference, PGandE shall notify the CEC in writing of such conference. PGandE shall reference the completed conferences in its periodic compliance reports.

- 12-13. PGandE shall furnish the CDF with a copy of the final fire protection system design.

Verification: Prior to construction, PGandE shall notify the CEC of the submittal to the CDF.

12-14. PGandE and the California Department of Forestry shall annually re-examine the fire protection plan.

Verification: PGandE shall note and summarize the joint re-examination of the fire protection plan in its periodic compliance report.

12-15. On-site worker safety inspections shall be conducted by the CAL/DOSH (California Division of Occupational Safety and Health) during construction and operation of the facility or when an employee complaint has been received.

Verification: 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 and shall notify CEC of the necessary corrective action. PGandE shall note any CAL/DOSH inspections and actions in its periodic compliance reports.

Section 13: TRANSMISSION LINE SAFETY AND NUISANCE

A. Applicable Laws, Standards, and Criteria

- o Noise: (Construction) CAL/DOSH, Title 8, California Administrative Code, Sections 5095 - 5099.
- o Noise: (Operation) Sonoma County--Sonoma County General Plan Noise Element (adopted January 1978).
- o Safety/Reliability: California Public Utilities Commission (CPUC) GO-95.
- o Safety: CAL/DOSH, Title 8, California Administrative Code, Article 85, Sections 2940 et seq.; Article 86, Sections 2946 et seq.; Article 87, Sections 2950 et. seq.; Title 8, Chapter 4, Subchapters 4 and 7.
- o Safety: (Interference with Navigable Airspace) FAA, 49 USCA 1348, 14 CFR, Part 77.
- o Nuisance: (Radio Interference) Federal Communications Commission Rules and Regulations, 47 CFR Part 15.25 (Incidental Radiation Devices).
- o Electrical Clearances: Title 14, California Administrative Code, Sections 1254 - 1256; Public Resources Code, Sections 4292 - 4296, State and Private Land Fire Protection.
- o PGandE Grounding Standard (DWG 020607, Geysers Unit 16 AFC, Volume II, Appendix C).

- o Staff RI/TVI Criteria.
- o CPUC General Order 131B.

B. Requirements

13-1. PGandE shall file a "Notice of Construction or Alteration" form with the Federal Aviation Administration if it anticipates that a transmission line tower or any appurtenance would be more than 200 feet above the ground level, per 14 CFR, Part 77.

Verification: PGandE shall forward a copy of any such filing to the CEC within 30 days of the filing.

13-2. PGandE shall construct, operate, and maintain the transmission lines in accordance with Title 14, California Administrative Code, Sections 1254 - 1256, and Public Resources Code, Sections 4292 - 4296.

Verification: Within 60 days after completion of construction, PGandE's registered engineer in responsible charge shall submit a statement to the appropriate PGandE Chief Engineer who shall transmit it to the California Department of Forestry (CDF) and the CEC indicating that the transmission line has been constructed in accordance with applicable requirements. PGandE shall also inspect the transmission line annually to ensure that the line maintains required clearances, especially during the fire season.

In the event that noncompliance is determined by the CDF, the CDF shall require PGandE to take measures necessary to correct the noncompliance.

13-3. 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 (Geysers Unit 16 AFC, Volume II, Appendix C).

Verification: Within 60 days after completion of transmission line construction, PGandE shall file a statement verifying compliance with these grounding procedures.

13-4. 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 maintain a record of activities related to this paragraph. These records shall be made available to authorized CEC staff upon request.

13-5. PGandE shall ensure that the design and construction of the transmission line satisfies or exceeds both the requirements of PUC General Order 95 and the terms and conditions of CEC certification. PGandE shall receive CEC approval for a waiver of any General Order 95 requirements. PGandE shall also receive CEC approval for any of the following significant changes in transmission line design:

- o Any change in conductor size from 1,431 kcmil;
- o Any tower configuration other than as proposed in the AFC;
- o Change to the number of circuits;
- o Change to the voltage level of the line;
- o Changes in normal or emergency conductor capacity greater than 15 percent;
- o Change in termination point; and
- o Change in route.

Verification: Within 60 days following completion of the transmission line, PGandE's registered engineer in responsible charge shall submit a statement to the appropriate PGandE Chief Engineer, who shall transmit it to the CEC. Said statement shall verify compliance with the requirements of PUC General Order 95 and with the terms and conditions of CEC certification. The statement shall note any waivers granted by the CEC for General Order 95 requirements.

13-6. On-site worker safety inspections may be conducted by the California Division of Occupational Safety and Health (CAL/DOSH) during construction and operation of the transmission line or when an employee complaint has been received. PGandE shall notify the CEC in writing in the event of a violation if such violation may delay the transmission line construction schedule.

Verification: PGandE shall maintain records of CAL/DOSH inspections and shall make them available to authorized CEC staff upon request.

13-7. PGandE shall make every reasonable effort to locate and correct, on a case-by-case basis, all causes of radio interference and television interference attributed to the transmission line facilities, including, if necessary, modifying receivers and furnishing and installing antennas. In addition, PGandE shall take reasonable care to prevent the conductors from being scratched or abraded.

Verification: PGandE shall maintain records of complaints and corrective action and shall make these records available to authorized CEC staff upon request.

13-8. Within seven days of a serious accident (as defined under State Labor Codes) or fatality, PGandE shall file a report by telephone with the CEC.

Verification: Within 30 days of an injury or fatality, PGandE shall prepare a report which includes: (1) the date the accident occurred; (2) the name and job title of the employee or the name of

the member of the public; (3) a description of the injury; (4) a description and cause of the accident; (5) a discussion of compliance with General Order 95 requirements and applicable DOSH regulations in the vicinity of the accident; and (6) a statement of corrective/preventative measures taken or to be taken.

PGandE shall keep copies of all such applicable reports in a separate file under Geysers Unit 20 and make such reports available to the CEC in PGandE's offices upon reasonable notice.

- 13-9. The CPUC and PGandE shall take all reasonable steps to ensure that the PUC's decision on the application for Certification of Public Convenience and Necessity (CPCN) accurately reflects the conditions adopted by the CEC.

Verification: Within 30 days of PGandE's receipt of the CPUC's decision on the CPCN, PGandE shall provide copies of the following to the CEC:

- a. All revisions to the CPCN, and
- b. A copy of the CPUC decision with all attachments.

Section 14: TRANSMISSION LINE ENGINEERING

(Compliance requirements are included in Section 13.)

A. Applicable Laws, Ordinances, and Standards

- o California Public Utilities Commission's (CPUC) General Order 95.

These standards primarily provide for public and utility worker safety, but are also intended by the CPUC to "materially contribute to the standard of public service rendered," that is, to improve reliability. The safety and reliability factors are so interrelated as to be inseparable. Accordingly, and to avoid duplication of effort, transmission line safety and reliability considerations are considered together in Section 13: Transmission Line Safety and Nuisance.

B. Requirements

- 14-1. PGandE shall submit to staff economic load level tables which are comparable to those in the Geysers Transmission System Master Plan Study.

Verification: PGandE shall provide CEC staff with the economic load level tables by March 9, 1983.

- 14-2. PGandE will build a new collector line in the Geysers KGRA to be operational by January 1, 1986. By July 1, 1983, or at such later time as is agreed to by CEC staff, PGandE will file an application with either the CEC or the CPUC to build the new collector line. If PGandE chooses to file for a later operational date, then PGandE will assume the burden of proof to justify the later date.

Verification: PGandE shall either file an application with the CEC or provide a copy of a filed PUC application to the CEC by July 1, 1983, or at such later time as is agreed to by CEC staff.

- 14-3. PGandE shall provide knowledgeable participants in future Geysers KGRA transmission hearings held by the CEC regarding taplines, collector lines and outlet lines.

Verification: Within one week of receipt of notice of a workshop, PGandE will notify the CEC as to who the PGandE representative will be.

- 14-4. PGandE shall within 30 days of receipt or within a mutually agreeable timeframe, respond to questions posed by staff regarding the PGandE Geysers 230 kV Collector Line and Power Value Derivation studies, coordinated planning activities and information with respect to PGandE's collector line and any other lead entity's outlet line, and questions relating to the staff's Master Plan Study. PGandE shall also provide knowledgeable participants in workshops if proposed by staff.

Verification: Within 30 days of receipt of staff's questions, or within the mutually agreed timeframe, PGandE shall provide staff with its written response(s) to the questions. Within one week or receipt of a workshop notice PGandE will notify the CEC as to whom the PGandE participant(s) will be.

Section 15: TRANSMISSION LINE BIOLOGICAL RESOURCES

(Compliance requirements are included in Section 5.)

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 Sonoma County General Plan.
- o Draft Sonoma County Zoning Ordinance.
- o Sonoma County Geothermal Use Permit Conditions (1981).

B. Requirements

16-1. PGandE shall comply with Sonoma County Geothermal Use Permit Standard Conditions (1981), which are 65 dBA for daytime hours (7 a.m. to 10 p.m.) and 45 dBA for nighttime hours (10 p.m. to 7 a.m.) for residences, or with conditions given in the Sonoma County Zoning Ordinance if adopted. In the event the Sonoma County Planning Department or PGandE receives public complaints of the noise due to construction or operation, Sonoma County and PGandE agree to promptly conduct an investigation to determine the extent of the problem. PGandE shall take reasonable measures to resolve the complaints.

Verification: At least 90 days before construction begins, 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 County deems the PGandE plan acceptable.

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

Verification: PGandE shall promptly forward to Sonoma County 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 noncompliance 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 500 feet from the generating station or at a point acceptable to PGandE, CEC, and Sonoma County Planning Department. The survey will cover a 24-hour period 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 additional noise surveys of off-site operational noise are required unless the public registers complaints or the noise from the project is suspected of increasing due to a change in the operation of the facility.

Verification: Within 30 days of the noise survey, PGandE shall submit its report to the Sonoma County Planning Department.

16-4. Within 180 days after the start of commercial operation, PGandE shall prepare a noise survey report for the noise-hazardous areas in the facility. The survey shall be conducted by a qualified person in accordance with the provisions of Title 8, CAC, Article 105. The survey results will be used to determine the magnitude of employee noise exposure. If employee complaints of excessive noise arise during the life of the project, CAL/DOSH, Department of Industrial Relations, shall make a compliance determination.

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

Section 17: POWER PLANT EFFICIENCY AND RELIABILITY

A. Applicable Laws, Ordinances, Standards, and Practices

- o Public Resources Code, Section 21100(c).
- o Public Resources Code, Section 25523(a).
- o Public Resources Code, Section 25511.

B. Requirements

17-1. PGandE shall perform a study concerning power plant efficiency from a cost/benefit point of view, including the impact upon the rate payers. In this study, PGandE shall evaluate and incorporate all of the CEC staff's parameters which were submitted on or before January 1, 1983. PGandE shall submit its study to the CEC by May 1, 1983, solely for the purposes of showing compliance with this requirement. PGandE will consider the merits of power plant efficiency for the next PGandE geothermal power plant prior to completion of site selection and committing to a plant design or procuring major equipment (e.g., turbine-generator, main condenser, and components of the circulating water and cooling system).

Submission of the study shall not be considered as establishing any precedent or as a pre-filing of the next PGandE geothermal AFC. In the event that the submission of the next PGandE geothermal AFC is delayed past July 1, 1984, PGandE and the CEC staff shall agree on a later date for submission of the study.

Verification: By May 1, 1983, PGandE shall submit to CEC a copy of the study identified in the above requirement, inclusive of CEC staff's parameters as mentioned in the requirement. In the event that the submission of the next PGandE geothermal AFC is delayed past July 1, 1984, PGandE and the CEC staff shall agree on a later date for submission of the study.

17-2. PGandE shall continuously obtain performance-related data over the life of the plant for the following operating parameters:

- a. Main condenser absolute pressure,
- b. Turbine inlet steam pressure, and
- c. Plant generation capacity as net and gross megawatts.

PGandE shall start obtaining the above data on the first day of plant operation which attains at least 90 percent of the net rated electrical power output at the plant busbar for a minimum of 48 hours of continuous steady state operation.

Steady state operation is defined as sustained operation of the plant, wherein the net electrical power output at the plant output busbar does not vary by more than plus or minus 5 percent over a one hour time period.

If the monitoring instrumentation systems are off-line for more than 24 hours, PGandE shall manually collect sufficient data as defined above in order to provide the required performance-related data.

Verification: PGandE shall submit to the CEC, at least 30 days prior to scheduled operation, a letter describing the instrumentation, its accuracy, and the intended frequency of calibration.

- 17-3. PGandE shall retain the plant performance-related data for each five years of plant operation or as required by the FERC or the CPUC or until the CEC has given its approval to dispose of the data. Further, PGandE shall provide a representative of the CEC, upon reasonable notice, access to the performance-related data at the plant site.

Verification: PGandE shall inform the CEC of the location of the performance-related data in a periodic compliance report.

- 17-4. Within 60 days of achieving at least 90 percent of net rated electrical power output at the plant output busbar for a minimum of 48 continuous hours of steady state operation, PGandE shall undertake an initial power plant performance test. The results of this test shall be submitted to the CEC within 60 days of test completion.

Verification: PGandE shall file the data with the CEC as defined above.

- 17-5. PGandE shall collect the routine performance-related data defined in requirement 17-2.

Verification: PGandE shall file the data with the CEC in a periodic compliance report.

17-6. After each overhaul of the Geysers 20 plant (estimated to be after 24 months of operation) or major emergency overhaul or repairs, PGandE shall undertake a post overhaul power plant performance test.

The power plant performance test results for the Geysers 20 power plant will include, but not be limited to, information on the following parameters:

- a. Mass-flow rate of inlet steam,
- b. Steam temperatures and pressures,
- c. Power plant auxiliary usage in megawatts,
- d. Power plant output at the busbar in megawatts,
- e. Power plant auxiliary steam flow,
- f. Turbine steam inlet pressure, and
- g. Main condenser absolute pressure.

Verification: PGandE shall submit the results of this test to the CEC within 60 days of test completion.

17-7. Information regarding the following parameters, at a minimum, will be available to the CEC staff for review at the power plant site upon request:

- a. Mass-flow rate of steam,
- b. Steam temperature and pressures,

- c. Power plant auxiliary usage in megawatts,
- d. Power plant electrical generation output at the busbar,
- e. Power plant auxiliary steam flow,
- f. Turbine steam inlet pressure, and
- g. Main condenser absolute pressure.

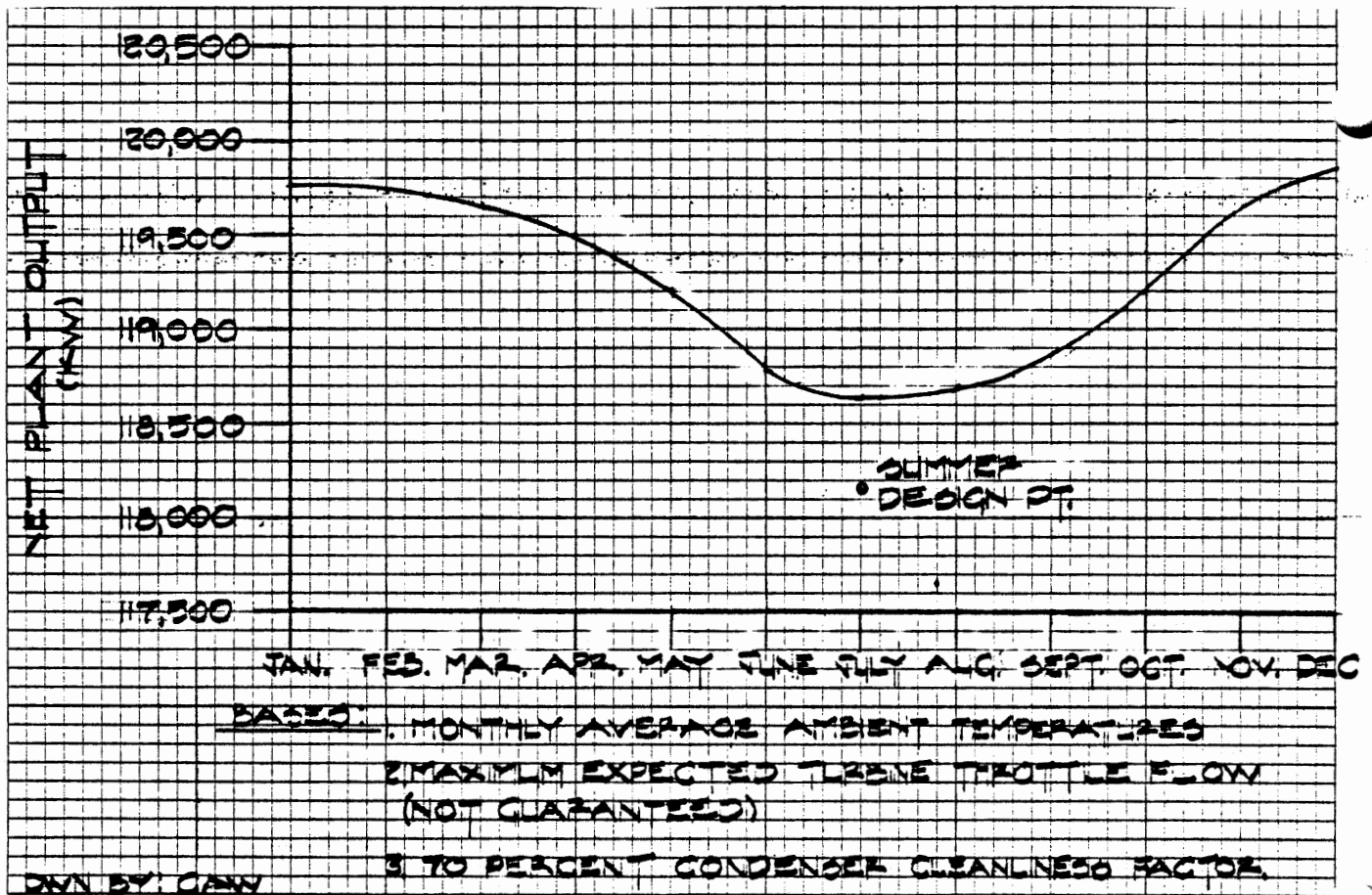
Verification: PGandE shall provide CEC staff with access, upon reasonable notice, to this data at the plant site.

17-8. If the routine data defined in requirement 17-2 indicates a significant degradation (defined as plant electrical output dropping 15 percent below the month to month levels indicated in the figure below) in performance prior to a regularly scheduled maintenance overhaul, PGandE shall develop and submit to the CEC a plan to restore performance to a level comparable to that indicated by the immediately preceding post-overhaul test results unless limited by economics or replacement parts availability.

17-9. PGandE shall report all forced outages and curtailments exceeding 24 hours. This reporting shall include possible causes and total downtime.

Verification: PGandE shall submit to the CEC such information in the periodic compliance reports.

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Verification: Within 60 days of detecting a significant degradation of performance, PGandE shall submit a plan for corrective action to the CEC. CEC staff shall respond within 15 days to PGandE's proposed plan. In the event that PGandE and the CEC cannot achieve an agreement on the plan to restore plant performance as defined in requirement 17-8, the matter shall be referred to the CEC for resolution under the procedures contained in the Compliance Plan Dispute Resolution Procedures. If PGandE so requests, the CEC will solicit comments from the CPUC concerning the rate impacts of any such plan, and, in any event, shall forward its final determination on this matter to the CPUC.

17-9. PGandE shall report all forced outages and curtailments exceeding 24 hours. This reporting shall include possible causes and total down time.

Verification: PGandE shall submit to the CEC such information in the periodic compliance reports.

