November 19, 1981

Docket No. 50-275

Mr. Malcolm H. Furbush
Vice President - General Counsel
Pacific Gas & Electric Company
P. O. Box 7442
San Francisco, California 94120

Dear Mr. Furbush:

SUBJECT: DIABLO CANYON UNIT 1 - INDEPENDENT DESIGN VERIFICATION PROGRAMS

The Commission's Memorandum and Order (CLI-81-30) dated November 19, 1981 suspends your license to load fuel and operate Diablo Canyon Unit 1 at power levels up to 5% of full power, and specifies the programs that must be satisfactorily completed before license suspension will be lifted.

Also, based upon recent NRC inspections conducted at PG&E and the Blume Offices in San Francisco, the NRC staff has identified a number of serious Quality Assurance (QA) program weaknesses related both to the errors in the Unit 1 seismic design and to the implementation by PG&E of applicable criteria of Appendix B of 10 CFR Part 50. We have preliminarily concluded that:

a. the PG&E QA Program did not appear to effectively exercise control over the review and approval of design information passed to and received from Blume.

b. the PG&E QA Program did not appear to adequately control the distribution of design information from Blume within affected internal PG&E design groups, and

c. The PG&E QA Program did not appear to define and implement adequate quality assurance procedures and controls over other service-related contracts particularly in the pre-June 1978 time period.

Accordingly, you are required to provide the following additional information, under oath or affirmation, for NRC review and consideration prior to issuance of any operating license authorizing operation of Diablo Canyon Unit 1 above 5% power:

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1. For All Non-Seismic Service - Related Contracts Prior to June 1978

   (a) The results of an independent design verification program of all safety-related activities performed prior to June 1, 1978 under all non-seismic service contracts utilized in the design process for safety-related structures, systems and components.

   Information concerning this program should address quality assurance procedures, controls and practices concerning the development, accuracy, transmittal, and use of all safety-related information both within PG&E and within each contractor's organization, as well as the transmittal of information between PG&E and each contractor. It should also include performance of a suitable number of sample calculations related to each contract to verify the adequacy and accuracy of the design process for affected safety-related structures, systems and components. The information to be provided concerning this design verification program should be based on and include the results of conducting the program elements set forth in Enclosure A.

   (b) A technical report that fully assesses the basic cause of all design errors identified by this program, the significance of design errors found, their impact on facility design.

   (c) PG&E's conclusions on the effectiveness of this design verification program in assuring the adequacy of facility design.

   (d) A schedule for completing any modifications to the facility that are required as a result of this program. For modifications that you propose not completing prior to operations above 5% power, the bases for proceeding should be provided.

2. For PG&E Internal Design Activities

   (a) The results of an independent design verification program of PG&E internal design activities performed on Diablo Canyon Unit 1 related to the development of the design of a suitable sample of safety-related structures, systems or components. The extent of the information provided related to this program should be that which is necessary to determine whether the overall PG&E quality assurance procedures and controls described in its QA Manual and associated procedures since 1970, have been fully and effectively implemented. This information should also include a suitable number of sample calculations to verify the adequacy and accuracy of the PG&E internal design activities for the sample of safety-related structures, systems, or components. The information to be provided concerning this design verification program should be based on and include the results of conducting the program elements set forth in Enclosure B.

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(b) A technical report that fully assesses the basic cause of all design errors identified by this program, the significance of design errors found, and their impact on facility design.

(c) PG&E's conclusions on the effectiveness of this design verification program in assuring the adequacy of facility design.

(d) A schedule for completing any modifications to the facility that are required as a result of this program. For modifications that you propose not completing prior to operations above 5% power, the bases for proceeding should be provided.

3. For All Service-Related Contracts Post-January 1, 1978

(a) The results of an independent design verification program of a suitable sample of the activities performed on Diablo Canyon Unit 1 by each service-related contractor that were completed subsequent to January 1, 1978 related to the development of the design of safety-related structures, systems and components. The extent of the information provided related to this program should be that which is necessary to determine whether the overall contractor and PG&E quality assurance procedures and controls that were in effect during this time period were fully and effectively implemented. This information should also include a suitable number of sample calculations to verify the adequacy and accuracy of the sample contractor and PG&E design activities for safety-related structures, systems and components. The information to be provided concerning this design verification program should be based on and include the results of conducting the program elements set forth in Enclosure C.

(b) A technical report that fully assesses the basic cause of all design errors identified by this program, the significance of design errors found, and their impact on facility design.

(c) PG&E's conclusions on the effectiveness of this design verification program in assuring the adequacy of facility design.

(d) A schedule for completing any modifications to the facility that are required as a result of this program. For modifications that you propose not completing prior to operations above 5% power, the bases for proceeding should be provided.

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In addition to the above, we require that you provide the following information for NRC review and approval as soon as practicable.

4. Qualifications of Companies Proposed to Conduct Independent Reviews

   A description and discussion of the corporate qualifications of the company or companies that PG&E would propose to carry out the various independent design verification programs discussed in 1 through 3 above, including information that demonstrates the independence of these companies.

NRC will make its decision on these proposed companies after providing the Governor of California and Joint Intervenors in the pending operating license proceeding 15 days for comment.

As soon as practicable following NRC approval of the company or companies to conduct the various independent design verification programs, you should also provide the following information for NRC review and approval.

5. Program Plan For the Design Verification Programs

   A detailed program plan for conducting the various design verification programs discussed in 1 through 3 above. The information provided should include the bases for the criteria proposed to be used for selection of a suitable number and type of sample calculations to be performed under these programs and the bases for the criteria proposed to be used for expanding the sample size based upon the results of the initial samples. In addition, the criteria for selecting the sample safety related structures, systems and components and sample contractor activities in the design verification programs under 2 and 3 above should be provided.

NRC will make its decision on the acceptability of the program plan after providing the Governor of California and Joint Intervenors in the pending operating license proceeding 15 days for comment.

To keep the NRC currently informed regarding your progress on the items discussed in 1 through 3 above, you are required to provide semi-monthly status reports on the ongoing reanalysis efforts and design verification programs being conducted by and for PG&E. These status reports should be submitted on the second and fourth Friday of each month to the Regional Administrator, Region V and the Director, Office of Nuclear Reactor Regulation. Should these reports or any other information that becomes available to the NRC indicate that the NRC requirements described in this letter should be expanded or supplemented, PG&E will be promptly informed.

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In the interest of efficient evaluation of your submittals, we request that you submit as soon as practicable a response to the request for additional information that was enclosed in the Staff's Meeting Summary dated October 19, 1981, on the October 14-16 meetings with PG&E.

Sincerely,

Original Signed by
H. R. Denton

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Enclosures:
As stated

cc: See Next Page

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DIABLO CANYON

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ENCLOSURE A

Elements Which Should be Included in the Design Verification Program of Non-Seismic Service Related Contracts Prior to June, 1978.

1. A review of all quality assurance procedures and controls used by each pre-June 1978 non-seismic service contractor and by PG&E with regard to that contract; a comparison of these procedures and controls with the related criteria of Appendix B to 10 CFR 50; and an identification of any deficiencies or weaknesses in the quality assurance procedures and in controls of the contractor and PG&E.

2. Development of a network for the design chain for all safety-related structures, systems, and components involved. This should include all interfaces where design information was transmitted between PG&E internal design groups and each contractor.

3. A review of the implementation of quality assurance procedures and controls used by and for:

   - PG&E internal design groups,
   - each contractor internal design group(s),
   - transmittal of information between PG&E and each contractor,
   - transmittal of contractor developed information within PG&E; and

   an identification of any deficiencies or weaknesses in the implementation of quality assurance procedures and controls by each contractor and by PG&E.

4. Development of criteria for the conduct of this design verification program should consider the relevant guidelines contained in ANSI N45.211, Section 6.3.1.

5. Development of criteria for selection of a suitable number and type of sample calculations related to the design of safety related structures, systems and components involved. The purpose of these sample calculations should be to verify the design process, particularly in the areas of any identified contractor or PG&E quality assurance weaknesses or deficiencies as determined from the procedure and implementation reviews discussed in steps 1 through 3 above. Criteria for expanding the sample size when problems in verification are encountered should also be developed.

ENCLOSURE B

Elements Which Should be Included in the Design Verification Program of PG&E Internal Design Activities

1. A review of all quality assurance procedures and controls used by internal PG&E design groups by selecting for detailed examination certain safety related structures, systems or components as representative samples of the overall facility design. A comparison of the PG&E procedures and controls used for the sample structures, systems or components with the related criteria of Appendix B to 10 CFR 50; and an identification of any deficiencies or weaknesses in these PG&E quality assurance procedures and controls.

2. Development of a network for the design chains for the sample structures, systems or components involved. This should include all interfaces where design information was transmitted between internal PG&E design groups.

3. A review of the implementation of quality assurance procedures and controls used in the design of the sample structure, systems or components by internal PG&E design groups, and an identification of deficiencies or weaknesses in the implementation of quality assurance procedures and controls by internal PG&E design groups.

4. Development of criteria for the conduct of this design verification program should consider the relevant guidelines contained in ANSI N45.211, Section 6.3.1.

5. Development of criteria for selection of a suitable number and type of sample calculations related to the design of the sample structures, systems or components involved. The purpose of these sample calculations should be to verify the design process, particularly in the areas of any identified PG&E quality assurance weaknesses or deficiencies as determined from the procedure and implementation reviews discussed in steps 1 through 3 above. Criteria for expanding the sample size when problems in verification are encountered should also be developed.

ENCLOSURE C

Elements Which Should be Included in the Design Verification Program of Service-Related Contracts After January 1, 1978

1. A review of quality assurance procedures and controls used by each post January 1, 1978 contractor and by PG&E with regard to that contractor by selecting for detailed examination certain activities of the contractor as representative samples of the entire activities carried out; a comparison of the procedures and controls used by the contractor and PG&E for the sample activities with the related criteria of Appendix B to 10 CFR Part 50; and an identification of any deficiencies or weaknesses in the quality assurance controls of the contractor and PG&E

2. Development of a network for the design chain for the structures, systems or components involved with the samole activities. This should include all interfaces where design information was transmitted between PG&E internal design groups and each contractor.

3. A review of the implementation of quality assurance procedures and controls used in the conduct of the sample activities by and for:

   - o PG&E internal design groups,
   - o each contractor internal design group(s),
   - o transmittal of information between PG&E and each contractor,
   - o transmittal of contractor developed information within PG&E; and

   an identification of any deficiencies or weaknesses in the implementation of quality assurance procedures and controls by each contractor and by PG&E.

4. Development of criteria for the conduct of this design verification program should consider the relevant guidelines contained in ANSI N45.211, Section 6.3.1.

5. Development of criteria for selection of a suitable number and type of sample calculations related to the sample activities involved. The purpose of these sample calculations should be to verify the design process, particularly in the areas of any identified contractor or PG&E quality assurance weaknesses or deficiencies as determined from the procedure and implementation reviews discussed in steps 1 through 3 above. Criteria for expanding the sample size when problems in verification are encountered should also be developed.

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