



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, D. C. 20555

June 20, 1984

Honorable Nunzio J. Palladino  
Chairman  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Dear Dr. Palladino:

SUBJECT: ACRS REPORT ON DIABLO CANYON NUCLEAR POWER PLANT

During its 290th meeting, June 14-16, 1984, the Advisory Committee on Reactor Safeguards reviewed the technical issues described in your letter dated April 13, 1984. A Subcommittee meeting was held in Los Angeles, California on May 24, 1984 to consider these issues. During its review, the Committee had the benefit of discussions with representatives of the Pacific Gas and Electric Company (PG&E), the U.S. Geological Survey (USGS), and the NRC Staff. The Committee also had the benefit of discussions with members of the public, Dr. James K. Crouch, the Committee's own consultants, and of the documents referenced.

In your April 13 letter you asked that the Committee review: (a) a license condition that would require PG&E to perform a seismic study to reevaluate the Diablo Canyon design basis; (b) the appropriateness of PG&E taking the lead in the performance of the seismic study; and (c) a recent technical paper by J. Crouch, S. Bachman, and J. Shay, and testimony given before the Commission on that paper.

The license condition referred to in item (a) has been discussed in the Commission Memorandum and Order CLI 84-5 of April 13, 1984. The NRC Staff has developed a proposal as to how this license condition should be implemented and has documented its proposal in a letter from R. Jackson to G. Knighton, dated May 7, 1984. This proposal requires that PG&E submit a program plan and schedule for implementation by January 30, 1985, and that the program be completed and a final report submitted to the NRC by July 1, 1988.

In our discussions with PG&E representatives, they stated that they are in general agreement with the NRC Staff proposal of May 7, 1984 and will submit a program plan by January 30, 1985. We believe that the elements outlined in the NRC Staff's proposal will provide a suitable basis for the seismic reevaluation. We believe also that the NRC Staff's proposal is responsive to the July 14, 1978 ACRS letter in which the ACRS suggested "that the seismic design of Diablo Canyon be reevaluated in about ten years taking into account applicable new information."

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The NRC Staff has proposed to undertake an independent evaluation in parallel with the PG&E efforts. In this program, technical assistance work and limited independent analysis would be utilized as needed for the NRC Staff's review of the PG&E work. The main elements of the NRC Staff's plan for its activities are outlined in its May 7, 1984 letter. We believe that it is appropriate for PG&E to take the lead in the seismic reevaluation and that the NRC Staff's independent evaluation can provide adequate review of the PG&E work. We recommend that the NRC effort include a significant support role for the USGS in this regard. We note that the seismic reevaluation includes the performance of a PRA. We believe that useful insights from the PRA would best be gained by PG&E if their personnel have an active role in this work.

We, with the assistance of our geological and seismological consultants, have reviewed the contents and implications of the paper by J. Crouch, S. Bachman, and J. Shay, entitled, "Post-Miocene Compressional Tectonics Along the Central California Margin." We have also reviewed the testimony on this paper given before the Commission on March 26-27, 1984. We do not believe that the findings in this paper indicate the need for any immediate revision of the seismic design basis for Diablo Canyon.

It is to be expected that new geological and seismic information will continue to be developed in the future here as well as elsewhere. In addition, there will be improved understanding in the seismic response and capability of nuclear power plants. A systematic framework for evaluating this information would be useful. The proposed seismic reevaluation plan should provide such a basis in part.

We request that we be given the opportunity to review and comment on the PG&E program plan and schedule. We request also that the NRC Staff meet with us as appropriate to discuss their evaluation of the PG&E work.

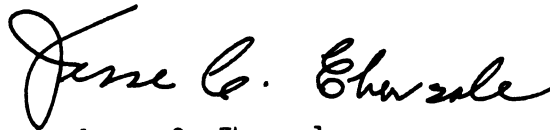
We recommend consideration of our consultants' advice concerning the proposed seismic reevaluation, including:

- Analyses should include inelastic response of the plant structures under strong earthquake ground motion.
- Near field strong ground motion above a thrust fault, including the possibility of a strong velocity pulse, should be considered.
- All components of near field strong ground motion should be included in the analysis simultaneously. Torsional and rocking input ground motion should not be ignored.
- Three-dimensional soil structure interaction should be employed to provide estimates of structural response.

- Advantage should be taken of existing proprietary seismic profile and well data.
- A critical review and evaluation should be made of the regional tectonic structure as well as the onshore and near offshore faults at the site in light of the new evidence that they may connect with an underlying thrust fault.

Based on the information developed in these meetings and considering the above comments, we find no reason to alter the conclusions stated in the Committee's report dated July 14, 1978 regarding operation of this nuclear plant.

Sincerely,



Jesse C. Ebersole  
Chairman

Attachments:

ACRS Consultants' Reports (Ref. 7)

References:

1. Letter from S. Mendes, Stanley H. Mendes, Inc., to R. Savio, Advisory Committee on Reactor Safeguards, Subject: Diablo Canyon Nuclear Power Plant, dated June 4, 1984
2. Letter from Alberta Rich, to R. Savio, Advisory Committee on Reactor Safeguards, Subject: Seismic Hearings in Los Angeles on May 24, 1984, dated June 1, 1984
3. Technical Paper entitled, "Post-Miocene Compressional Tectonics Along the Central California Margin," by James K. Crouch, Steven B. Bachman, and John T. Shay, Nekton, Inc.
4. Transcript of Diablo Canyon Commission Meetings on March 26, 1984 (pp. 103-135) and March 27, 1984 (pp. 138-165)
5. Letter from R. Jackson, Division of Engineering, NRC, to G. Knighton, Division of Engineering, NRC, Subject: Status of Draft Elements for the Diablo Canyon License Condition, dated May 7, 1984
6. Letter from R. Jackson, Division of Engineering, NRC, to J. Knight, Division of Engineering, NRC, Subject: Preliminary Summary and Evaluation of Article Containing New Information or Interpretations of Faults in the Near Offshore of Central Coastal California (Including the Hosgri Fault Near Diablo Canyon), dated May 21, 1984
7. Advisory Committee on Reactor Safeguards Consultants' reports from B. Page, dated May 29, 1984; G. Thompson, dated May 30, 1984; J. Maxwell, dated June 16, 1984; E. Luco, dated June 11, 1984; and M. Trifunac, dated June 14, 1984 regarding Diablo Canyon Nuclear Power Plant