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

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July 17, 1985

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

Dear Dr. Palladino:

SUBJECT: ACRS COMMENTS ON THE LONG TERM SEISMIC PROGRAM PLAN FOR THE DIABLO CANYON POWER PLANT

During its 303rd meeting, July 11-13, 1985, the Advisory Committee on Reactor Safeguards completed its review of the Long Term Seismic Program (LTSP) Plan, dated January 1985, submitted by the Pacific Gas and Electric Company (Licensee) for the Diablo Canyon Power Plant. This plan was considered by a Subcommittee at meetings on March 21, 1985, in Culver City, California, and on July 10, 1985, in Washington, D. C. During our review, we had the benefit of discussions with representatives of the NRC Staff and the Licensee. We also had the benefit of the documents referenced.

The LTSP Plan was prepared by the Licensee in response to a condition in the Operating License for Unit 1 of the Diablo Canyon Power Plant. This condition requires the Licensee to develop and implement a program to reevaluate the seismic design bases for the plant.

The NRC Staff's evaluation of the LTSP Plan was provided to us in a letter from T. M. Novak to R. F. Fraley dated July 2, 1985. The Staff has concluded that the program plan, as amended during discussions with the Licensee during the past five months, is responsive to the license condition for a reevaluation of the seismic design bases. We agree with this conclusion.

During our review, we discussed at some length the appropriate scope for the Probabilistic Risk Analysis (PRA) that the Licensee has proposed to use, in part, to assess the significance of the conclusions that will be drawn from the reassessment. The Licensee has proposed a Level 1 PRA; this will yield core melt frequencies and plant damage states, but will not yield containment failure probabilities, source terms for radioactive material released into the containment or to the environment, and its effects on the surrounding population. The NRC Staff considers a Level 1 PRA acceptable. We agree.

Additional comments by ACRS members William Kerr, David Okrent, and David Ward are presented below.

Sincerely,

David A. Ward
Chairman

Additional Comments by ACRS Members William Kerr, David Okrent, and David Ward

We recommend that a Level 2 PRA, rather than a Level 1 PRA, be performed, if a PRA is to be performed. Otherwise, neither the Licensee nor the NRC Staff will have a satisfactory basis for estimating the likelihood of various containment failure modes and the associated relationship between radioactive release beyond containment and frequency of occurrence. The reasons for this deficiency with only a Level 1 PRA include the following:

- No evaluation will be available of the likelihood of containment failure and mode of failure as a function of pressure and temperature. Potential low pressure capacity points at penetrations will not be uncovered.

- Diablo Canyon is sufficiently different from Zion and Indian Point, or other PWRs for which a relatively complete and recent full scope PRA exists, that there is no good surrogate for detailed evaluation of the effects of partial or full failure of various engineered safeguards including containment spray, emergency power, service water, and shutdown heat removal.

- There will be no evaluation of the potential for a severe earthquake to degrade containment performance capability, as distinct from causing direct failure.

- A severe earthquake can be the source of far more complex transients and accidents than are usually considered in a full-scope PRA. Not only multiple failures, but a major loss of information together with spurious information in the control room, coupled with a highly unusual and stressful situation, make invalid prior estimates of operator actions which could lead to a change in containment failure likelihood and mode; this would have to be reassessed.

References:

1. Pacific Gas and Electric Company, "Long Term Seismic Program Program Plan," dated January 1985

2. Letter from Thomas M. Novak, Assistant Director for Licensing, Division of Licensing to Raymond F. Fraley, Executive Director, ACRS, dated July 2, 1985 transmitting NRC Staff Evaluation of the PG&E Long Term Seismic Program Plan