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JUN 1 3 1975

Docket Nos. 50-275
and 50-323

Pacific Gas and Electric Company
ATTN: Mr. John C. Morrissey
Vice President & General Counsel
77 Beale Street
San Francisco, California 94106

Gentlemen:

We are presently conducting a review of the effects of secondary system fluid flow instability in PWR's. Events, such as the damage to the feedwater system piping that occurred at the Indian Point 2 facility on November 13, 1973, could originate as a result of the uncovering of the feedwater sparger in the steam generator or the uncovering of the steam generator feedwater inlet nozzles. Subsequent events may in turn lead to the generation of a pressure wave that is propagated through the pipes. Therefore, we request that you provide information which will enable us to determine whether these effects have been considered in the Diablo Canyon design. The specific information requested is contained in the Enclosure.

Please inform us within 14 days after receipt of this letter of your schedule for providing this information. Contact us if you have any questions regarding the information requested.

Sincerely,

Olan D. Parr, Chief
Light Water Reactors
Project Branch 1-3
Division of Reactor Licensing

Enclosure:
Request for Additional
Information

cc: See page 2

Misc
(41)

OFFICE	RL:LWR 1-3	RL:LWR 1-3				
SURNAME	DAllison:mk	ODParr				
DATE	6/ /75	6/ /75				

Form AEC-318 (Rev. 9-53) AECM 0240 ☆ U. S. GOVERNMENT PRINTING OFFICE: 1974-526-166

cc: Philip A. Crane, Jr., Esq.
Pacific Gas and Electric Company
77 Beale Street
San Francisco, California 94106

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California Public Utilities Commission
350 McAllister Street
San Francisco, California 94102

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4623 More Mesa Drive
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Ms. Elizabeth E. Apfelberg
1415 Cazadero
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Ms. Sandra A. Silver
1315 Cecelia Court
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Mr. John Forster
985 Palm Street
San Luis Obispo, California 93401

Mr. William P. Cornwell
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Mr. Gordon Silver
1315 Cecelia Court
San Luis Obispo, California 93401

Mr. Joseph W. Dorrycott
Westinghouse Electric Corporation
P. O. Box 355
Pittsburgh, Pennsylvania 15230

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GENERAL INFORMATION REQUIRED

The following is a general list of information required for our review of the effects of secondary system fluid flow instability in PWR's, and for our review of any proposed design changes that may be found necessary. Since piping layouts and system designs are substantially different from plant to plant, you should determine the applicability to the Diablo Canyon design of each of the following items for inclusion in your response.

1. Describe all potential operating occurrences that could cause the level of the water/steam interface in the steam generator to drop below and uncover the feedwater sparger (or inlet nozzles), and allow steam to enter the sparger and the feedwater piping. Such uncoverings could lead to "water hammer" that could result in deleterious consequences for the system piping (e.g., Indian Point 2 feedwater line failure, November 13, 1973).

2. Describe and show by isometric diagrams, the routing of the main and auxiliary feedwater piping from the steam generators outwards through containment up to the outer isolation valve and restraint. When describing the piping run, note all valves and reference continually, the elevation of the inlet nozzles and/or sparger with respect to the piping run elevation.

3. Describe all analyses of the piping system in which dynamic forcing functions were assumed. Also, provide the results of any test programs that were carried out to verify that either uncovering of the feedwater lines could not occur at your facility, or if it did occur, the water hammer effect did not result.

a. If forcing functions were assumed in your analysis, provide the technical basis that you used to assure that an appropriate choice was made, and that adequate conservatisms were included in the analytical model.

b. If a test program was followed, provide the basis for assuring that the program adequately tracked and predicted the flow instability event that occurred, and further, that the test results contained adequate conservatisms and an acceptable factor of safety, e.g., range of parameters covered all conceivable modes of operation.

If neither a or b have been performed, present your basis for not requiring either and your future plans to investigate this potential transient occurrence.

4. In order to bound the consequences of this event, discuss the possibility of a sparger or nozzle uncovering, and the consequent pressure wave effects that would occur in the piping following a design basis accident with concurrent turbine trip and loss of off-site power.

5. If plant system design changes are to be made to preclude the occurrence of flow instabilities, describe these changes or modifications, and discuss the reasons that made this alternative superior to other alternatives that might have been applied. Discuss the quality assurance program that will be followed to assure that the planned system modifications will have been correctly accomplished at the facility.

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6. Discuss the effects of reduced auxiliary feedwater flow as a possible means of reducing the magnitude of induced pressure waves including positive means (e.g., interlocks) to assure sufficient low flow rates and still meet the minimum requirements for the system safety function.

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