

PDR

MAR 10 1987

MEMORANDUM FOR: George W. Knighton, Project Director  
Project Directorate #7  
Division of PWR Licensing B  
Office of Nuclear Reactor Regulation

FROM: Stuart D. Rubin, Chief  
Reactor Operations Analysis Branch  
Office for Analysis and Evaluation  
of Operational Data

SUBJECT: POSTULATED COMMON MODE FAILURE OF SAFETY-RELATED  
CHARGING PUMPS AT SAN ONOFRE UNITS 2 AND 3

Enclosed for your information is an AEOD Technical Review Report entitled "Leaking Pulsation Dampener Leads to Loss of Charging System." In this report, three events of a loss of charging pump suction at the Palo Verde Nuclear Generating Station are discussed. In two of the events, a failed rubber bladder in the gas-filled pulsation dampener of a positive displacement pump led to all three positive displacement pumps becoming gas-bound through their common suction header. The positive displacement pumps at Palo Verde and most other CE plants are not safety-related. A subsequent investigation concluded that a postulated similar failure of the pulsation dampener at Westinghouse plants with positive displacement pumps would not affect the safety-related charging pumps in the charging system. This is because Westinghouse plants vent the relief valves on the positive displacement pump discharge line to the volume control tank while CE plants route the relief valve discharge to the common suction header of the charging pumps. Also, IE Information Notice 82-19 discussed the failure of a suction stabilizer (identified as a suction dampener in the notice) at a Westinghouse plant which led to the common mode failure of all charging pumps due to gas binding. The enclosed report covers the additional potential for common mode failure of charging systems at CE plants due to leaking pulsation dampeners.

It was noted in this report that the safety-related charging system at San Onofre Units 2 and 3 was similar to the nonsafety-related charging system at Palo Verde in regard to both the positive displacement charging pumps and their associated pulsation dampeners. Thus, the report concludes that a similar rupture of the bladder of the gas-filled pulsation dampener could lead to the common mode failure of the safety-related charging system at only these two units. Because the type of failure observed at Palo Verde only potentially affects a safety-related charging system at these two CE units, the study is being forwarded to you for your information and use as you may deem appropriate.

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No specific action or written response to this memorandum is requested. If you or your staff should have any questions regarding this matter, please do not hesitate to contact Ted Cintula (x24434) of my staff.

Stuart D. Rubin, Chief  
Reactor Operations Analysis Branch  
Office for Analysis and Evaluation  
of Operational Data

Enclosure:  
As stated

cc: H. Rood, NRR  
M. Beaumont, W  
C. Brinkman, CE  
R. Borsum, B&W  
L. Gifford, GE

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