

Southern California Edison Company

SAN ONOFRE NUCLEAR GENERATING STATION

P.O. BOX 128

SAN CLEMENTE, CALIFORNIA 92672

H. B. RAY  
STATION MANAGER

September 29, 1983

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U. S. Nuclear Regulatory Commission  
Office of Inspection and Enforcement  
Region V  
1450 Maria Lane, Suite 210  
Walnut Creek, California 94596-5368

Attention: Mr. J. B. Martin, Regional Administrator

Dear Sir:

Subject: Docket Nos. 50-206 50-361 and 50-362  
San Onofre Nuclear Generating Station  
Units 1, 2 and 3

My letter to you dated August 5, 1983, discussed our response to concerns raised by Mr. John Mertens. In that letter, four areas requiring additional action were noted. Our assessment of these areas is now complete and the results are attached for your information.

The conclusions of our August 5, 1983, response were not affected by the completion of these open items.

Sincerely,



Attachment

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RESPONSES TO OPEN ITEMS FROM  
THE AUGUST 5, 1983, H. B. RAY  
LETTER TO J. MERTENS

Item 1: Further evaluation as to the mechanism that imposed abnormal loads on the snubbers on FW189 will be performed.

Response: In the August 5, 1983, report a preliminary conclusion was reached that the 1981 Feeding Integrity Test caused the failure of the snubbers on FW189. The final completed evaluation agrees with this conclusion. The loads from this transient were estimated to be on the order of 50 kips on the feedwater check valve. The August 5, 1983, report provided a detailed engineering analysis which confirmed that the stresses imposed on the piping and components by this load were acceptable.

Item 2: Other scenarios will be evaluated as part of the continuing snubber failure analysis.

Response: Potential transients listed below were evaluated for order of magnitude loads:

- A. March, 1981, Feeding Integrity Test on steam generator E-088.
- B. June, 1982, Feeding Integrity Test on steam generator E-088.
- C. Loss of power to feedwater control system. This transient actually occurred in November, 1982.
- D. Low steam generator water level combined with a leaking main feedwater check valve.
- E. Cavitation in the main feedwater piping.
- F. Reverse flow through the auxiliary feedwater regulating valve bypass line.
- G. High or low steam generator water levels.

Of these transients only the March, 1981, Feeding Integrity Test and the low steam generator water level combined with a leaking main feedwater check valve can result in

loads sufficient to damage the feedwater snubbers. As already discussed, loads from the Feeding Integrity Test were estimated to be on the order of 50 kips. Loads in the range of 50 to 120 kips could be generated in the main feedwater piping if cold auxiliary feedwater is injected into a drained feeding which is steam-filled (resulting from the leaking check valve). During normal plant evolutions, including routine transients, operating parameters preclude occurrence of this situation. As discussed below in Item 4, criteria for determining when a potentially damaging waterhammer might have occurred will be developed.

Item 3: Further evaluation as to the specific causes of the snubber failure will be performed to determine any long-term corrective action.

Response: With completion of the evaluation, no long-term corrective actions are envisioned. On-going assessment of snubber inspection techniques will continue as industry and station experience bring new information forward.

Item 4: Criteria for determining when a potentially damaging waterhammer might have occurred will be developed.

Response: The station technical section has the responsibility for the evaluation of transient conditions. This is accomplished via the Station Incident Report process for abnormal plant occurrences and the post-trip review following plant trips. Both of the procedures controlling these reviews have been modified to require an inspection program whenever transients occur which are outside the bounds of events known to have acceptable snubber performance.