

APR 29 1986

Docket No.: 50-206

Mr. Kenneth P. Baskin, Vice President
Nuclear Engineering
Safety and Licensing Department
Southern California Edison Company
2244 Walnut Grove Avenue
P.O. Box 800
Rosemead, California 91770

Dear Mr. Baskin:

SUBJECT: SAN ONOFRE, UNIT 1

The NRC staff review of your April 8, 1986 Investigative Report on the San Onofre Unit 1 Water Hammer event is ongoing. Our review has determined that several items require further information, as per discussions in several previous telephone calls. Specific questions are provided in the enclosure to this letter. The schedule for responses to these questions will be determined by discussions with your NRC Project Manager.

The reporting and/or recordkeeping requirements contained in this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P. L. 96-511.

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Richard F. Dudley, Project Manager
Project Directorate #1
Division of PWR Licensing-A


cc: See Next Page

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Kenneth P. Baskin
Southern California Edison Company

San Onofre Nuclear Gener
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ENCLOSURE

REQUEST FOR ADDITIONAL INFORMATION

1. Provide schedules for the implementation of all corrective actions listed in Section 6.5.7.3 of the April 8, 1986 report.
2. Provide the status and schedule of your efforts to respond to IE Information Notice 84-90, dated December 7, 1984. Will these efforts evaluate the containment pressure response considering the effect of superheat due to tube bundle uncover in steamline break transients?
3. Submit for staff review the re-analyses of Loss of Normal Feedwater and Main Feedline Rupture transients which are mentioned in Sections 6.1.2.2 and 6.1.2.3 of the April 8, 1986 report.
4. Spurious indication of safety injection on loss of power.
 - a. Is the new power source for the SI annunciator auxiliary relay contact chain "backed up by an" or is it an uninterruptable power supply (UPS)?
 - b. Is the new power source the same power source that powers the annunciator? If not, indicate how spurious indication is prevented.
 - c. Is the new power source Class 1E and diesel backed?
 - d. Describe the power sources for the UPS and their priorities. Is divisional independence maintained?
5. Spurious remote indication for safeguard load sequencers.
 - a. Section 6.2.4.11 indicates that sequencer 1 and a spare logic board were tested. Was sequencer 2 and the plant wiring tested? If not, address the acceptability of not testing this equipment.
6. Reactance bypass circuit breaker.
 - a. Will the alarms be both local and in the control room?
 - b. Are the alarms actuated on the conditions diesel generator breaker closed and reactance breaker closed, or some other conditions?
 - c. When will the operating procedures be modified to incorporate the action to be taken in the event that this alarm sounds?

7. Vital bus 4.
 - a. Describe in greater detail the UPS that will be provided as one of the power sources for vital bus 4. Will it be the normal power source? What are its power sources? Is divisional independence maintained?
 - b. Is the UPS sized to account for present and future loads?
8. What was the DC overvoltage high potential test value applied for testing 4160 volt cables? Was this test performed as a step voltage test? What was the cable? If the maximum test voltage was used on old cable, how has SCE assured that no further damage has been incurred in the cable?
9. The core ground insulation test indicated one hundredth of a meg-ohm resistance. This resistance is lower than the resistance measured during 1979 test. How do these values compare with previous test and/or factory test values? The core ground insulation value is extremely low. Provide the basis and rationale for accepting this value for safe operation of this transformer.
10. Provide test data for the tests conducted "As found tests" and "As left tests." How do these test data compare to the previous year's tests and/or factory tests for transformer C and other equipment tested?
11. What type of 4160V cable was used for replacement of old cable? Provide information on cable type and materials. What type of testing was performed on the new cable before it was energized?
12. Provide information on the systematic method for monitoring selected electrical circuits for establishment of a surveillance program as noted in your report (ie., EG&G ECCAD system). Does SCE have in place any other testing program for monitoring cable (and other electrical equipment) integrity over time?
13. It is referenced in Section 6.2.1.4 Item 6 (page 6-102) that additional design changes are being made to enhance the performance of the electrical system. Item (e) refers to plant improvement to increase reliability of the electrical system and states that a modification will be implemented to enhance the availability of the second source of off site power. Describe what this modification will consist of and when will it be implemented.

14. Has any evaluation or analysis been performed to trend the test results to assess the auxiliary transformer C condition and reliability? Provide information, if any, in this regard.
15. Provide the test voltage value at which the insulation resistance tests were performed for transformer C and other electrical equipment.
16. Would the "4160 volt bus sources parallel" annunciator with 10 second time delay include the diesel generator source when it is paralleled with the offsite source?
17. Is there any operating mode when the diesel generator may be paralleled with auxiliary transformer A and/or B? Is this mode of operation acceptable and would it be covered in the proposed new procedures?
18. On page 8-2, Item 6, "Guidance will be issued to address the reenergization of station auxiliary equipment using diesel generators-----". When will this guidance be issued and/or submitted for NRC review?
19. On page 8.3, reference is made to the evaluation of the material condition of electrical power cable to identify causes of the cable failure. When will this evaluation be submitted to NRC? How will be result of this report be incorporated in the evaluation of the remaining cable and/or how the impact of this evaluation on existing cable, if any, be handled by SCE?
20. The LOVATS and end of sequence light - Is this light a single light and if so, how will its reliability be affected?
21. For Piping Inside Containment on Feedwater Line B.
 - a. Did the licensee ultrasonically inspect each weld that was not replaced?
 - b. Will the licensee ultrasonically inspect each weld in the replacement line and the welds connecting the replacement line to the existing line?
 - c. Will the licensee radiographically inspect the welds connecting the replacement line to the existing line?
 - d. Identify ASME Code and Addenda standard, including class, used to inspect these welds.

- e. Why are indications in piping attached to steam generator E-1B feedwater nozzle considered non-relevant?
 - f. Indicate size (length and depth) of flaw remaining in containment penetration C-3C.
22. For Piping Outside Containment on Feedwater Line B
- a. Identify ASME Code and Addenda standard including class, used to inspect these welds.
 - b. Identify size (length and depth) of all seven indications remaining in welds of these pipes.

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