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January 26, 1982

Director, Office of Nuclear Reactor Regulation
Attention: D. M. Crutchfield, Chief
Operating Reactors Branch No. 5
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

Subject: Docket No. 50-206
SEP Topic VI-7.B
San Onofre Nuclear Generating Station
Unit 1

Your letter of July 24, 1981, forwarded the draft evaluation for SEP Topic VI-7.B, ESF Switchover From Injection to Recirculation Mode (Automatic ECCS Alignment). You requested that we inform you of differences in the Unit 1 design from the licensing basis assumed in your assessment. The results of our review of the topic evaluation and additional comments are provided as an enclosure to this letter.

If you have any questions regarding the enclosed, please let me know.

Very truly yours,

R. W. Krieger
Supervising Engineer
Nuclear Licensing

Enclosure

A035
S/1

COMMENTS ON SEP TOPIC VI-7.B

SAN ONOFRE UNIT 1

1. The flowrates stated in the first paragraph of the evaluation are apparently from Reference 3. However, this reference quotes the maximum refueling water pump flowrate as 1513 gpm in lieu of 1512 gpm.

2. The second sentence of the second paragraph should be corrected as follows: "... injection flow is considerably reduced, by manual trip of the safety injection and feedwater pumps on low level in the RWST or high level in the containment sump." The existing statement that injection is reduced on a low-low level alarm in the RWST is not complete.

3. The first sentence on page 2 should be clarified to read: "... manual procedure that requires execution of a sequence of manual actions by the operator following receipt of specific indications and alarms in order to assure no significant interruption of reactor coolant and containment spray following a design basis LOCA."

4. The second sentence, third paragraph, on page 2 is incorrect. As indicated in Reference 3, the operator is instructed to take action on receipt of the second of four alarms or indications. Therefore, if the sump alarm fails, the second alarm/indication received by the operator will be the RWST level indication at 21% which corresponds to 54,280 gallons. This also changes subsequent numbers in the third paragraph. Specifically, in 30 seconds the RWST level will be reduced to 43,078 gallons or about 16.4% and 3 minutes later the RWST level will be reduced to 37,549 gallons or about 14%, based on a flowrate of 1843 gpm.

5. The second to last sentence on page 2 is incorrect. As indicated in Reference 3, at reduced safety injection/containment spray flow the flowrate will be 1842 to 1877 gpm. In addition, an RWST level of 7% corresponds to 18,644 gallons. Therefore, the time available to the operator to complete the realignment to the sump after the 3 minutes at reduced flow corresponds to 10.1 minutes. (This corresponds to reducing the RWST volume from 37,549 gallons to 18,644 gallons at a flowrate of 1877 gpm).

6. The first paragraph on page 3 identifies a calculated value of 2.4 minutes as the time available for realignment if there is an additional delay of 30 seconds prior to terminating safety injection. This paragraph should be corrected as follows. An additional 30 seconds at full flow reduces the RWST level by 11,202 gallons (22,405 gpm x .5 min.). This reduces the 10.1 minutes in item 5 above, by 6 minutes (11,202 gal./1,877 gpm). Therefore, the available time for realignment is 4.1 minutes in addition to the 3 minutes at reduced flow.

7. The second to last sentence refers to "the critical level of 7%." As indicated in Reference 3, the 7% level is 2 1/2 feet or 17,014 gallons, above the elevation at which the refueling water and charging pumps take suction from the RWST. Therefore, although this is the level specified in the procedure there is considerable margin in this value and it is not appropriate to refer to it as "the critical level."

8. Reference 3 refers to "Operating Instruction 5-3.4.4 Emergency," which it is assumed should have been S-3.5.5. This procedure has been replaced with "Operating Instruction SO1-1.2-1, Emergency, Loss of Coolant."

9. The topic evaluation refers to Reference 4, which is an NRC internal report. It is requested that a copy of this report be provided for our information.

10. Figure 1 should be corrected to identify the line containing MOV850A as "Loop A CL".

11. Figures 1, 2 and 3 should be revised to show a normally closed valve on the line to the reactor refueling cavity.

12. Figure 3 should show check valves between MOV866A and 866B and the recirculation pumps.

13. In addition to the scenarios discussed above and in the NRC draft evaluation, SCE has evaluated another single failure which could affect the switchover from injection to recirculation. This scenario was identified in SCE's letter from H. B. Ray to R. H. Engelken dated November 16, 1981. Specifically, the scenario involves failure of a feedwater pump miniflow valve (CV 36 or CV 37) to close on a safety injection signal (SIS), resulting in partial diversion of safety injection water to the condenser hotwell. Our evaluation of this event concluded (1) that this failure is less limiting than the loss of an entire train which is assumed in the LOCA analysis, (2) for a break larger than 3 to 4 inches insufficient water will be directed prior to the initiation of recirculation to affect NPSH requirements, and (3) for a break smaller than 3 to 4 inches, operator action will be required prior to 40 minutes for the maximum diverted flow rate to minimize the amount of water diverted to the condenser hotwell and thus not available for recirculation. Since a condenser high level alarm would be received in about 20 minutes assuming the maximum diverted flow rate, there is sufficient time for operator action to isolate the miniflow line.