



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO.114 TO PROVISIONAL OPERATING LICENSE NO. DPR-13

SOUTHERN CALIFORNIA EDISON COMPANY

SAN DIEGO GAS AND ELECTRIC COMPANY

SAN ONOFRE NUCLEAR GENERATING STATION, UNIT NO. 1

DOCKET NO. 50-206

INTRODUCTION

By letter dated July 20, 1987, the Southern California Edison Company (SCE) submitted proposed Amendment Application No. 142 to Provisional Operating License No. DPR-13 for the San Onofre Nuclear Generating Station, Unit 1 (SONGS-1). Supplemental information was provided by letters dated March 25, 1988 (LER) and April 13, 1988 which did not alter the action noticed, or affect the staff's initial determination published, in the Federal Register on August 27, 1987. The proposed amendment would revise Technical Specification (T.S.) 4.2.1 to provide a long-term requirement for the surveillance of the Safety Injection System (SIS) at SONGS-1. The requirement would supersede the interim surveillance requirement T.S. 4.2.3 which has expired.

DISCUSSION AND EVALUATION

The SONGS-1 SIS is designed as a shared system with the dual train Main Feedwater System. During a safety injection event, the Main Feedwater Pumps switch from supplying condensate to the steam generators to supplying borated water to the Reactor Coolant System (RCS). The switching is accomplished by the sequential operation of eight valves (four in each train) which terminate the flow of condensate and establish the flow of borated water. The original design employed motor operators for the eight valves which were later replaced by fast-acting hydraulic actuators. Two of these hydraulically actuated valves, HV-851 A and B, which are located at SI pump discharges, failed in 1981. An investigation indicated that unanticipated forces caused by the following three factors contributed significantly to the failure:

1. Galling of the valve seat,
2. Double drag of the valve discs, and
3. Use of a marginal coefficient of friction for the sizing of the hydraulic actuators.

The licensee took a set of corrective measures to eliminate the above three problems. These included programs to reduce the differential pressure across the valve disc faces and to eliminate double disc drag. In addition, the licensee also committed to an interim surveillance program that required the measurement of the valve actuating force to verify the adequacy of the corrective measures. The commitment was defined in SONGS-1 T.S. 4.2.3, and was effective for one fuel cycle. By letter dated July 20, 1987, the licensee submitted Amendment Application No. 142 to Provisional Operating License No. DPR-13 which constitutes the licensee's proposed long-term revision of the T.S.

The proposed revision eliminates the interim requirements delineated in T.S. 4.2.3, "Safety Injection System Hydraulic Valve Testing", and modifies T.S. 4.2.1, "Safety Injection and Containment Spray Testing" to establish a program to verify SIS performance on a long-term basis.

T.S. 4.2.1, in its present form, requires tests to verify both system and components operability. The system operability is established by "no-flow" tests to verify component sequencing, and trisodium phosphate tests to verify the readiness and concentration of the chemical content, at intervals not longer than normal refueling intervals. The component tests consist of periodic verification of performance parameters of the SI pumps in addition to visual leakage inspections of recirculation loop and containment spray piping. T.S. 4.2.3, which is no longer effective, specified that at least once every 92 days, a "Hot-SIS" functional test in Mode 3 or 4 be performed to measure the forces required to open valves HV-851 A and B with valves MOV-850 A, B, and C locked closed. Valves MOV-850 A, B and C are isolation valves located between the SIS and the RCS. Closing these valves means that SIS was taken out of service for the duration of the test. T.S. 4.2.3 also contained an equation specifying the limits on force and necessary actions that should be taken when these limits were exceeded.

The proposed change will eliminate T.S. 4.2.3 and the interim 92-day interval Hot-SIS hydraulic valve test. However, T.S. 4.2.1 will be revised to (1) incorporate a test and an equation similar to those required by T.S. 4.2.3, and (2) perform the "no-flow" valve sequencing test on a "hot" basis. Both tests will be conducted without the isolation of SIS, i.e., without requiring valves MOV-850 A, B, and C to be locked in closed positions. Essentially, the new requirements are: (1) the SI system and components will be tested on a "hot" basis under the reactor coolant pressure; (2) an equation similar to the one specified by T.S. 4.2.3 will be used to determine the required future test intervals; and (3) a change of test interval requirement such that tests will be performed only when the plant is in MODE 3 and while being shut down from MODE 1 to MODE 5 but the intervals need not be shorter than nine months. Surveillance requirements of the SONGS-1 IST program for pumps and valves and the trisodium phosphate test program both remain unchanged.

The purpose of the SIS tests is to verify the readiness of the system and its components. This is accomplished by determining that: (1) all SIS components have operated and sequenced properly; (2) the measured actuator forces for both HV-851 A and B valves do not exceed 10,000 lb force; and (3) if the 10,000 pounds force limit is exceeded, surveillance level must be increased. Test conditions should simulate the working conditions closely so that a realistic challenge to all components can be established. The proposed T.S. revision adequately addresses the purpose of the testing under these conditions. The elimination of the testing requirement to lock MOVs 850 A, B, and C at closed positions is desirable as it would increase the availability of the SIS during tests. The proposal therefore is acceptable.

The amendment application proposed by Southern California Edison Company for SONGS-1 provides an adequate set of requirements to verify the readiness of the SIS and will be effective on a long term basis. The proposed tests will enhance the availability of the system during testing periods. The procedure will also complement the IST requirements for the operating plant.

The staff finds the Amendment Application No. 142 to Provisional Operating License No. DPR-13, together with the clarifications provided in letters dated March 25, 1988 and April 13, 1988, to be acceptable.

ENVIRONMENTAL CONSIDERATION

This amendment involves changes in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes to surveillance requirements. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

CONCLUSION

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations and (3) the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

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Dated: November 18, 1988