



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 128 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

1.0 INTRODUCTION

By letter dated 11 April 1989, Southern California Edison Company (SCE or the licensee) requested a change to the Technical Specifications appended to the Provisional Operating License No. DPR-13 for operation of the San Onofre Nuclear Generating Station, Unit No. 1 in San Diego County, California. The proposed amendment would modify the Technical Specification Section 3.5.1, "Reactor Trip System Instrumentation," which, in Table 3.5.1-1, provides the limiting conditions for operation and the action statements for the reactor trip instrumentation. The proposed change would revise Table 3.5.1-1 to add a footnote in the Applicable Modes column for Function Unit 4, Intermediate Range, Neutron Flux. The footnote will indicate that the startup rate circuit for the intermediate range channels will be enabled at 10^{-4} percent of full power instead of 10^{-3} percent of full reactor power as presently implied but not specified in the Technical Specifications.

2.0 EVALUATION

During the Cycle 19 refueling outage that began in November 1988, the entire Nuclear Instrumentation System (NIS) was replaced. This replacement required a license amendment, No. 117, that was issued by the USNRC on December 13, 1988.

The Intermediate Range Neutron Flux channels of the new NIS exhibited Electromagnetic Interference (EMI) noise difficulties at very low power levels. This noise affected the high startup rate reactor trip signals such that spurious trips would be generated at low power during power ascensions. The licensee has stated that the known noise generators have been found and corrected. The staff has requested and the licensee has committed to monitor for EMI during power ascensions over this fuel cycle and correct any problems that would impact the NIS.

Nevertheless, to eliminate the potential for these spurious trips, the neutron flux, as signaled by the intermediate range circuits, at which the high startup rate reactor trip is automatically enabled was set at 10^{-4} percent of full reactor power. Previously the trip was enabled when the intermediate neutron flux channels became active at about 10^{-6} percent of full power.

The intermediate range neutron flux channels of the new NIS provide post-accident flux monitoring capability with indication from 10^{-7} percent power to 200 percent reactor power. This range satisfies the Regulatory Guide 1.97 requirements. These channels also provide a high startup rate reactor trip, high startup rate rod stop and display reactor power (or count rate at very low power levels) and startup rate. These intermediate range neutron flux channels thus provide some reactor protection during startup. However, the high startup rate trip, provided by the intermediate range flux channels is not required for mitigation of any analyzed accident. It is identified as providing a protective function for the Uncontrolled Rod Withdrawal from Subcritical in Section 15.8.1 of the UFSAR. This event is analyzed assuming that the core protection is provided only by the overpower reactor trip at 118 percent reactor power as measured by the power range channel.

Although not required, as indicated above, reactor protection during startup is also provided by the source range flux instrumentation which also produces a rod stop signal on high startup rates. Since actuation of any of these protection functions will limit rod withdrawal when safe limits are exceeded and since no credit is taken for any of these rate stops and since the analysis indicates that no core damage is likely even if all of these source range and intermediate range protective functions are disabled, adjusting the enable set point to 10^{-4} percent reactor power will not jeopardize the present level of safety and is found by the staff to be acceptable.

3.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission's regulations in 10 CFR 50.92 state that the Commission may make a final determination that a license amendment involves no significant hazards considerations if operation of the facility in accordance with the amendment would not:

- (1) Involve a significant increase in the probability or consequences of any accident previously evaluated; or
- (2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or
- (3) Involve a significant reduction in a margin of safety.

This amendment has been evaluated against the standards in 10 CFR 50.92. A discussion of these standards as they relate to the amendment request follows:

Standard 1 - Operation of the facility in accordance with the proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated. Operation of the facility has no effect on the accidents analyzed in the UFSAR. The modification of the startup rate circuit impacts the high startup rate rod stop and the high startup rate reactor trip functions by enabling them at a higher point in the intermediate neutron flux range. Although this enabling at a higher flux level will cause the functions to be actuated at a later time, the delay does not impact accident probabilities as these functions are of a mitigative nature providing reactor core control and protection during transients and accidents. This proposed modification also has no effect on the accident analysis, particularly the Control Rod Withdrawal from Subcritical, since these functions are not credited. These functions will still be actuated sooner than the reactor trip on overpower, the credited trip for the Control Rod Withdrawal from Subcritical accident. Therefore, the accident probabilities and consequences are not affected by this change.

Standard 2 - Operation of the facility in accordance with the proposed amendment will not create the possibility of a new or different kind of accident from any accident previously evaluated. The modification associated with this proposed change revises the startup rate circuit for the intermediate range channels such that the protective functions are enabled at $10^{-4}\%$ of full reactor power versus $10^{-6}\%$ of full power. The protective functions, high startup rate rod stop and high startup rate reactor trip, provided by the intermediate range channels are still available and will function as they did previously. Only their time of actuation will be delayed. This modification does not result in a new accident because these functions are of a mitigative nature providing reactor core protection and control. A different kind of accident is not created since these functions are not credited in any of the accident analyses. In the case of Control Rod Withdrawal from Subcritical, these functions are a back-up to the reactor overpower trip. They will still actuate well before the overpower trip occurrence at 118% of full reactor power providing reactor core protection. Therefore, a new or different kind of accident from any previously evaluated is not created.

Standard 3 - Operation of the facility in accordance with the proposed amendment will not involve a significant reduction in a margin of safety. The modification associated with this change revises the startup rate circuit for the intermediate neutron flux range by moving the enabling set point to $10^{-4}\%$ of full reactor power. This change affects the operational margin to some extent because the protective functions provided by the intermediate range channels are actuated at a later time.

As previously indicated, this delay has no effect on the accident analysis because these protective functions are not credited. Therefore, the safety margins associated with the accident analyses are not affected. As indicated in Figure 15.8-1 of the UFSAR the protective function, overpower trip, for the Control Rod Withdrawal from Subcritical occurs at 17.5 seconds. This timing is not affected by the change because the high startup rate rod stop or the high startup rate trip would have been actuated well before that time. Therefore, the margin of safety is not affected by this proposed change.

The staff, therefore, has determined that operation of the facility in accordance with the proposed change does not involve a significant hazards consideration.

Accordingly, the Commission has determined that this amendment involves no significant hazards consideration.

4.0 BASIS FOR EMERGENCY TREATMENT

Under the Commission's regulations in 10 CFR 50.91, an emergency situation is deemed to exist when, as here, failure to act in a timely way would result in derating or shutdown or a delay in startup of a nuclear power plant. Licensees are also required to explain why the situation occurred and why it could not be avoided.

In its submittal of 11 April 1989, the licensee explained that, initially, it was SCE's intention to submit this technical specification change request following the plant's return to service. This position was based on the Intermediate Range channels not being credited in any accident analysis. Further the startup rate reactor trip and startup rate rod stop are fully capable of performing their intended functions in Mode 2 when enabled at 10^{-4} percent reactor power. Subsequent to SCE's conclusion, the NRC staff determined that this design feature must be included in the technical specification before startup from the present outage. Because restart from the present outage is imminent, the licensee requested that this change be considered on an emergency basis.

Further, the Commission normally does not issue an amendment until the expiration of a 30-day notice period. However, if circumstances change, during the notice period such that failure to act in a timely way would result in derating or shutdown of the facility, or in prevention of either resumption of operation or of increase in power output up to the plant's licensed power level, the Commission may issue the license amendment before the expiration of the 30-day notice period, provided, as in this instance, that its final determination is that the amendment involves no significant hazards consideration. The notice was published in the Federal Register on 28 April 1989 (54 FR 18369), thus the comment period will expire on 30 May 1989. This amendment is being issued prior to the notice expiration date because, for the reasons identified above, we conclude that SCE has satisfied the requirements for emergency consideration of its request.

5.0 CONTACT WITH STATE OFFICIAL

The NRC staff advised the California State Department of Health Services of the final determination of no significant hazards consideration by telephone on 11 May 1989. The California state official had no comment on this determination.

6.0 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. 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.

7.0 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: May 16, 1989