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SUBJECT: Application for amend to Licenses NPF-10 & NPF-15, revising
 Tech Specs by reducing min required cold leg temp between
 30% & 70% of rated thermal power, from 544F to 535F. Fee
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MANAGER, NUCLEAR LICENSING

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October 11, 1984

Director, Office of Nuclear Reactor Regulation
Attention: Mr. George W. Knighton, Branch Chief
Licensing Branch No. 3
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

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

Enclosed for your review and approval is a proposed change to Technical Specification 3.2.6 "Reactor Coolant Cold Leg Temperature" of the San Onofre Nuclear Generating Station Units 2 and 3 Operating Licenses NPF-10 and NPF-15 respectively. The proposed change reduces the minimum required cold leg temperature between 30% and 70% of Rated Thermal Power, from 544°F to 535°F. The proposed change is requested to provide additional operational flexibility.

Approval of the proposed change is requested by January 1, 1985 to facilitate the Unit 2 return to power following the refueling outage. SCE will be available to assist the NRC staff in resolving comments regarding the proposed change.

In accordance with 10 CFR 170.12, an amendment application fee of \$150 is associated with the subject proposed change; a check for \$150 corresponding to the above is enclosed. A formal request for an amendment to Operating Licenses NPF-10 and NPF-15 will be submitted in Mid-November 1984.

If you have any questions concerning the enclosed information, please call me.

Very truly yours,

M.O. Medford

Enclosure

cc: Harry Rood, NRC (to be opened by addressee only)
Joseph O. Ward, California Department of Health Services
A. E. Chaffee, NRC Resident Inspector

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DESCRIPTION OF PROPOSED CHANGE NPF-10/15-149
AND SAFETY ANALYSIS

This is a request to revise Section 3.2.6 - Reactor Coolant Cold Leg Temperature - Limiting Condition for Operation of the Technical Specifications for San Onofre Nuclear Generating Station Units 2 and 3.

Description

The proposed change revises Technical Specification 3.2.6 - Reactor Coolant Cold Leg Temperature - Limiting Condition for Operation which requires that the Reactor Coolant Cold Leg Temperature (T_C) be maintained between 544°F and 558°F when in Mode 1, above 30% of Rated Thermal Power. The limiting condition for operation ensures that the cold leg temperature is maintained within the limits assumed in the accident analyses. The proposed change reduces the lower limit on cold leg temperature from 544°F to 535°F for power levels greater than 30% and less than or equal to 70% of Rated Thermal Power. The proposed change provides additional operational flexibility for plant maneuvering, to prevent exceedance of the Technical Specification limits.

The lower limit of cold leg temperature is established taking into consideration its impact on the peak reactor coolant system (RCS) pressure during decreased heat removal events and the peak clad temperature during a large-break loss of coolant accident (LOCA). For the decreased heat removal events, a reduced lower limit on T_C will delay the opening of the main steam safety valves because of the lower initial pressure in the steam generators. The lower T_C also results in a more positive moderator temperature coefficient. Both these effects will tend to result in a higher peak RCS pressure. For the large break LOCA's, a reduced lower limit on T_C will cause a small variation in the core flow transient resulting in a slightly reduced heat removal from the core. This will tend to increase the peak clad temperature which occurs later during the reflood period. The lower initial T_C reduces the initial RCS saturation pressures and the containment back-pressure during a large break LOCA; thus resulting in reduced blowdown and reflood flow rates, and blowdown and reflood heat transfer. For both the decreased heat removal events and the large break LOCA's, the lower initial power levels of less than or equal to 70% of Rated Thermal Power more than offset the effects of the reduced lower limit on T_C . Additionally, the Core Operating Limits Supervisory System (COLSS) uncertainties and the ex-core detector decalibration factors have been evaluated to ensure that they remain valid over the proposed temperature range.

The present cold leg temperature limit of Technical Specification 3.2.6 is $544^{\circ}\text{F} \leq T_C \leq 558^{\circ}\text{F}$ at power levels greater than 30% of Rated Thermal Power. Below 30% of Rated Thermal Power, the average RCS temperature is limited to no lower than 520°F by Technical Specification 3.1.1.4, minimum temperature for criticality. The proposed change reduces the lower limit on

the cold leg temperature (T_c) at reduced power by revising the T_c limits from " $544^{\circ}\text{F} \leq T_c \leq 558^{\circ}\text{F}$ at greater than 30% of Rated Thermal Power" to " $535^{\circ}\text{F} \leq T_c \leq 558^{\circ}\text{F}$ at greater than 30% and less than or equal to 70% of Rated Thermal Power, and $544^{\circ}\text{F} \leq T_c \leq 558^{\circ}\text{F}$ at greater than 70% of Rated Thermal Power."

The requirement for the limiting condition for operation on the lower limit of cold leg temperature is to ensure that the consequences of events impacted by this temperature meet the acceptance criteria described in NUREG-0800, U.S. Nuclear Regulatory Commission Standard Review Plan (SRP). Statements of the acceptance criteria are as follows:

- a. Pressures in the reactor coolant and main steam systems should be maintained below 110% of the design values.
- b. The calculated maximum fuel element cladding temperature does not exceed 2200°F .

The proposed change would provide additional operational flexibility for plant maneuvering without violating the Technical Specification limit on cold leg temperature. Justification for the reduced lower limit on cold leg temperature at reduced powers is based on the results of a reevaluation of the limiting event (loss of condenser vacuum with a concurrent single failure at 70% of Rated Thermal Power) and large-break LOCA. It is also based on verification of the validity of the COLSS uncertainties and the ex-core decalibration factors at the lower temperatures. The results indicate that the acceptance criteria of the SRP are met. Furthermore, there is no change to the plant hardware, analysis methodology or method of operation. Therefore, the proposed change does not involve a significant hazards consideration.

Existing Technical Specification

Unit 2: See Attachment A
Unit 3: See Attachment B

Proposed Technical Specification

Unit 2: See Attachment C
Unit 3: See Attachment D

Safety Analysis

The proposed changes discussed above shall be deemed to constitute a significant hazards consideration if there is a positive finding in any of the following areas.

1. Will operation of the facility in accordance with the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

Operation with reduced lower limit on cold leg temperature at less than full power has no effect on the probability of occurrence of a loss of condenser vacuum event or other events. The consequent

slight lowering of secondary steam pressure with lower T_c will have a negligible effect on the performance of the steam jet air ejectors used to maintain condenser vacuum.

The reevaluation of the loss of condenser vacuum with a concurrent single failure at 70% of Rated Thermal Power with the lower minimum cold leg temperature of 535°F and correspondingly higher moderator temperature coefficient resulted in an RCS peak pressure of 2653 psia. The results of the previously analyzed event, loss of condenser vacuum with a concurrent single failure at 100% of Rated Thermal Power at the current cold leg temperature of 544°F, indicated a peak RCS pressure of 2749 psia. Thus, there is no increase in the consequences of an accident previously evaluated. Moreover, the resulting peak RCS pressure of 2653 psia for the reanalyzed accident at the reduced lower cold leg temperature for power levels less than or equal to 70% of Rated Thermal Power is well below the acceptable limit of 2750 psia per the SRP criteria.

For the large break LOCA, the effect of reducing the lower limit of cold leg temperature is offset by the reduction in initial power level, and the results are less limiting than the full power case at current lower limit of cold leg temperature.

The COLSS uncertainties and ex-core decalibration factors are valid for the reduced lower limit of cold leg temperature considered in the reanalysis. Also, there is no change to the plant hardware, analysis methods or operating procedures.

For the above reasons, operation of the facility in accordance with the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Will operation of the facility in accordance with the proposed change create the possibility of a new or different kind of accident from any previously evaluated?

Response: No

The hardware and operating procedures for the plant will be unaffected by the proposed change. The proposed change will provide additional operational flexibility for plant maneuvering without violating the lower limit on cold leg temperature. Therefore, there are no new or different kinds of accidents which would result from the proposed change.

3. Will operation of the facility in accordance with the proposed change involve a significant reduction in a margin of safety?

Response: No

The proposed change reduces only the lower cold leg temperature for power levels of 70% of Rated Thermal Power or less. The peak RCS pressure for decreased heat removal events and the peak clad

temperature for large breaks LOCAs initiated at the reduced lower cold leg temperature with power levels less than or equal to 70% of Rated Thermal Power, are well below the acceptable limit of the SRP acceptance criteria. Therefore, the operation of the facility in accordance with the proposed changes does not involve a significant reduction in a margin of safety.

The Commission has provided guidance concerning the application of the standards for determining whether a significant hazards consideration exists by providing certain examples (48 FR 14870) of amendments that are considered least likely to involve significant hazards considerations. Example (vi) relates to a change which either may result in some increase to the probability or consequences of a previously-analyzed accident or may reduce in some way a safety margin, but where the results of the change are clearly within all acceptance criteria specified in the Standard Review Plan. The proposed change is similar to example (vi) in that this change may reduce the safety margin with respect to peak RCS pressure at power levels between 30% and less than or equal to 70% of Rated Thermal Power, but where the results of this change are clearly within the acceptance criteria with respect to the peak RCS pressure specified in the Standard Review Plan.

Safety and Significant Hazards Determination

Based on the above discussion, the proposed change does not involve a significant hazards consideration in that it does not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; (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. In addition, it is concluded that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed change; and (2) this action will not result in a condition which significantly alters the impact of the station on the environment as described in the NRC Final Environmental Statement.

SB:2544F