

February 12, 1999

Mr. Harold B. Ray
Executive Vice President
Southern California Edison Company
San Onofre Nuclear Generating Station
P.O. Box 128
San Clemente, California 92674-0128

SUBJECT: ISSUANCE OF AMENDMENT FOR SAN ONOFRE NUCLEAR GENERATING STATION, UNIT NO. 2 (TAC NO. MA2238) AND UNIT NO. 3 (TAC NO. MA2239)

Dear Mr. Ray:

The Commission has issued the enclosed Amendment No. 149 to Facility Operating License No. NPF-10 and Amendment No. 141 to Facility Operating License No. NPF-15 for San Onofre Nuclear Generating Station, Unit Nos. 2 and 3. The amendments consist of changes to the Technical Specifications (TS) in response to your application dated June 19, 1998, as supplemented by letters dated December 4, 1998, and January 13, 1999.

These amendments modify the TS to (1) reduce the minimum reactor coolant system (RCS) cold leg temperature (Tc); (2) convert the specified reactor coolant system (RCS) flow from mass units (lbm/hr) to volumetric units (gpm); and (3) eliminate the maximum RCS flow rate limit from the TS.

A copy of our related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,
Original Signed By
James W. Clifford, Senior Project Manager
Project Directorate IV-2
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket Nos. 50-361
and 50-362

- Enclosures: 1. Amendment No. 149 to NPF-10
- 2. Amendment No. 141 to NPF-15
- 3. Safety Evaluation

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Mr. Harold B. Ray

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February 12, 1999

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SOUTHERN CALIFORNIA EDISON COMPANY

SAN DIEGO GAS AND ELECTRIC COMPANY

THE CITY OF RIVERSIDE, CALIFORNIA

THE CITY OF ANAHEIM, CALIFORNIA

DOCKET NO. 50-361

SAN ONOFRE NUCLEAR GENERATING STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 149
License No. NPF-10

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Southern California Edison Company, et al. (SCE or the licensee) dated June 19, 1998, as supplemented by letters dated December 4, 1998, and January 13, 1999, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

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2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C(2) of Facility Operating License No. NPF-10 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 149 , are hereby incorporated in the license. Southern California Edison Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance and is to be implemented within 30 days of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



James W. Clifford, Senior Project Manager
Project Directorate IV-2
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: February 12, 1999

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 149 TO FACILITY OPERATING LICENSE NO. NPF-10

DOCKET NO. 50-361

Revise Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by Amendment number and contain marginal lines indicating the areas of change.

REMOVE

3.4-1
3.4-2
3.4-3

INSERT

3.4-1
3.4-2
3.4-3

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.1 RCS DNB (Pressure, Temperature, and Flow) Limits

LCO 3.4.1 RCS parameters for pressurizer pressure, cold leg temperature, and RCS total flow rate shall be within the limits specified below:

- a. Pressurizer pressure ≥ 2025 psia and ≤ 2275 psia;
- b. RCS cold leg temperature (T_c):
 - 1. For THERMAL POWER less than or equal to 30% RTP, $522^\circ\text{F} \leq T_c \leq 558^\circ\text{F}$.
 - 2. For THERMAL POWER greater than 30% RTP, $535^\circ\text{F} \leq T_c \leq 558^\circ\text{F}$.
- c. RCS total flow rate $\geq 396,000$ gpm.

APPLICABILITY: MODE 1.

-----NOTE-----
Pressurizer pressure limit does not apply during:

- a. THERMAL POWER ramp $> 5\%$ RTP per minute; or
 - b. THERMAL POWER step $> 10\%$ RTP.
-

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer pressure or RCS flow rate not within limits.	A.1 Restore parameter(s) to within limit.	2 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 2.	6 hours
C. RCS cold leg temperature not within limits.	C.1 Restore cold leg temperature to within limits.	2 hours
D. Required Action and associated Completion Time of Condition C not met.	D.1 Reduce THERMAL POWER to $\leq 30\%$ RTP.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.1.1 Verify pressurizer pressure ≥ 2025 psia and ≤ 2275 psia.	12 hours
SR 3.4.1.2 Verify RCS cold leg temperature: 1. For THERMAL POWER less than or equal to 30% RTP, $522^{\circ}\text{F} \leq T_c \leq 558^{\circ}\text{F}$.	12 hours
	(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.1.2 (continued) 2. For THERMAL POWER greater than 30% RTP, $535^{\circ}\text{F} \leq T_c \leq 558^{\circ}\text{F}$.	
<p style="text-align: center;">-----NOTE----- Required to be met in MODE 1 with all RCPs running. -----</p>	
SR 3.4.1.3 Verify RCS total flow rate $\geq 396,000$ gpm.	12 hours



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SOUTHERN CALIFORNIA EDISON COMPANY

SAN DIEGO GAS AND ELECTRIC COMPANY

THE CITY OF RIVERSIDE, CALIFORNIA

THE CITY OF ANAHEIM, CALIFORNIA

DOCKET NO. 50-362

SAN ONOFRE NUCLEAR GENERATING STATION, UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 141
License No. NPF-15

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Southern California Edison Company, et al. (SCE or the licensee) dated June 19, 1998, as supplemented by letters dated December 4, 1998, and January 13, 1999, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

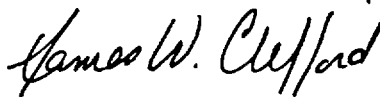
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C(2) of Facility Operating License No. NPF-15 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 141, are hereby incorporated in the license. Southern California Edison Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance, and is to be implemented within 30 days of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



James W. Clifford, Senior Project Manager
Project Directorate IV-2
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: February 12, 1999

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 141 TO FACILITY OPERATING LICENSE NO. NPF-15

DOCKET NO. 50-362

Revise Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by Amendment number and contain marginal lines indicating the areas of change.

REMOVE

3.4-1

3.4-2

3.4-3

INSERT

3.4-1

3.4-2

3.4-3

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.1 RCS DNB (Pressure, Temperature, and Flow) Limits

LCO 3.4.1 RCS parameters for pressurizer pressure, cold leg temperature, and RCS total flow rate shall be within the limits specified below:

- a. Pressurizer pressure ≥ 2025 psia and ≤ 2275 psia;
- b. RCS cold leg temperature (T_c):
 - 1. For THERMAL POWER less than or equal to 30% RTP, $522^\circ\text{F} \leq T_c \leq 558^\circ\text{F}$.
 - 2. For THERMAL POWER greater than 30% RTP, $535^\circ\text{F} \leq T_c \leq 558^\circ\text{F}$.
- c. RCS total flow rate $\geq 396,000$ gpm.

APPLICABILITY: MODE 1.

-----NOTE-----
Pressurizer pressure limit does not apply during:

- a. THERMAL POWER ramp $> 5\%$ RTP per minute; or
 - b. THERMAL POWER step $> 10\%$ RTP.
-

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer pressure or RCS flow rate not within limits.	A.1 Restore parameter(s) to within limit.	2 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 2.	6 hours
C. RCS cold leg temperature not within limits.	C.1 Restore cold leg temperature to within limits.	2 hours
D. Required Action and associated Completion Time of Condition C not met.	D.1 Reduce THERMAL POWER to $\leq 30\%$ RTP.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.1.1 Verify pressurizer pressure ≥ 2025 psia and ≤ 2275 psia.	12 hours
SR 3.4.1.2 Verify RCS cold leg temperature: 1. For THERMAL POWER less than or equal to 30% RTP, $522^{\circ}\text{F} \leq T_c \leq 558^{\circ}\text{F}$.	12 hours

(continued)

RCS DNB (Pressure, Temperature, and Flow) Limits
3.4.1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.1.2 (continued) 2. For THERMAL POWER greater than 30% RTP, $535^{\circ}\text{F} \leq T_c \leq 558^{\circ}\text{F}$.	
-----NOTE----- Required to be met in MODE 1 with all RCPs running. -----	
SR 3.4.1.3 Verify RCS total flow rate $\geq 396,000$ gpm.	12 hours



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 149 TO FACILITY OPERATING LICENSE NO. NPF-10
AND AMENDMENT NO. 141 TO FACILITY OPERATING LICENSE NO. NPF-15
SOUTHERN CALIFORNIA EDISON COMPANY
SAN DIEGO GAS AND ELECTRIC COMPANY
THE CITY OF RIVERSIDE, CALIFORNIA
THE CITY OF ANAHEIM, CALIFORNIA
SAN ONOFRE NUCLEAR GENERATING STATION, UNITS 2 AND 3
DOCKET NOS. 50-361 AND 50-362

1.0 INTRODUCTION

By letter dated June 19, 1998, as supplemented by letters dated December 4, 1998, and January 13, 1999, Southern California Edison Company, the licensee, requested changes to technical specification (TS) Limiting Condition for Operation (LCO) 3.4.1, "[Reactor Coolant System] RCS [Departure from Nucleate Boiling] DNB (Pressure, Temperature, and Flow) Limits." The requested changes would (1) reduce the minimum RCS cold leg temperature (T_{cold}) from 544°F to 535°F between 70% and 100% rated thermal power (RTP), (2) convert the specified RCS minimum flow rate from mass units (lbm/hr) to volumetric units (gpm), and (3) eliminate the maximum RCS flow rate limit.

The reduction in T_{cold} is being requested in order to minimize further steam generator tube degradation. The conversion of flow rate from mass units to volumetric units is being requested in order to make the units in the TS consistent with the units of the measured flow rate and the units of the flow rate input to the CESEC computer code which is used for the San Onofre Nuclear Generating Station (SONGS) Units 2 and 3 safety/accident analyses of record. Elimination of the maximum RCS flow rate is being proposed because (1) it is not a limiting departure from nucleate boiling ratio (DNBR) criterion, (2) the safety margin to DNB increases as the flow rate increases, and (3) actual reactor coolant pump (RCP) flow output is physically limited to values well below the approximately 120% of RCS design basis minimum total flow rate at which core uplift could become an operational issue.

The supplemental letters dated December 4, 1998, and January 13, 1999, provided additional clarifying information, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination published in the Federal Register on September 9, 1998 (63 FR 48266).

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2.0 EVALUATION

2.1 Reduction of T_{cold}

The licensee proposed to modify TS LCO 3.4.1.b. to combine the separate restrictions for T_{cold} for the two power regions of between 30 percent and 70 percent RTP and above 70 percent RTP; and impose a minimum T_{cold} of 535°F over the entire range. Current TS LCO 3.4.1 requires a minimum T_{cold} of 535°F for power levels between 30 percent and 70 percent RTP and 544°F for power levels above 70 percent RTP. Therefore, this request constitutes a reduction in minimum T_{cold} from 544°F to 535°F for power levels above 70 percent RTP. The maximum T_{cold} value of 558°F is not changed by this request. Changes to Surveillance Requirements 3.4.1.2.2 and 3.4.1.2.3 were requested consistent with the proposed changes to this LCO.

The licensee reviewed the relevant Updated Final Safety Analysis Report (UFSAR) events for San Onofre Units 2 and 3 with regard to the impact of the proposed change. Non-mode 1 events (UFSAR Sections 15.4.1.4, 15.4.1.5, and 15.4.3.1); uncontrolled CEA withdrawal from a subcritical or low power condition (UFSAR Section 15.4.1.1); and UFSAR Sections 15.7 and 15.8 events were determined to not be relevant to this change and, therefore, were not included in the licensee's review. Table H-1 in the licensee's June 19, 1998, submittal provided a summary of the results of this review. As presented in Table H-1, many of the UFSAR events were found to be not affected by the reduction in the minimum T_{cold} value. This was because, for these events, the minimum value of T_{cold} was not limiting with respect to the acceptance criteria. For those events where the minimum value of T_{cold} was limiting, the licensee identified the corresponding bounding events with respect to the applicable acceptance criteria, assessed the impact of the proposed change on the bounding events, and concluded that the applicable criteria continued to be met. The bounding events identified were the loss of condenser vacuum (LOCV) with a concurrent single failure of an active component, chemical and volume control system (CVCS) malfunction with a concurrent single failure of an active component, and the loss of coolant accident (LOCA) events (UFSAR Sections 15.2.2.3, 15.5.2.1, and 15.6.3.3, respectively).

The licensee identified the LOCV with a concurrent single failure of an active component event as a bounding event with respect to peak RCS pressure. The proposed change to minimum T_{cold} would impact the results of this event with respect to this criteria. Therefore, the licensee reanalyzed this event. To determine the limiting core inlet temperature for the event, the licensee varied the initial core inlet temperature from 532°F to 560°F. The range of 532°F to 560°F bounds the proposed range of 535°F to 558°F plus a +/-2°F for measurement uncertainty. The limiting temperature from a peak RCS pressure perspective was determined to be 537°F and, therefore, this value was used in the reanalysis. The peak RCS pressure achieved by the reanalysis was 2744 psia, which is below the limit of 2750 psia. Therefore, the reanalysis demonstrated that the RCS pressure limit criterion of 110 percent of design pressure continues to be met for the reduction in minimum T_{cold} . From a main steam system overpressure perspective, the maximum value of T_{cold} was limiting in the licensee's analysis of record. Therefore, the licensee determined that this portion of the analysis was not affected by the proposed change.

The CVCS malfunction with a concurrent single failure of an active component event was identified as another event which may be affected by the proposed change. The licensee provided a sensitivity analysis for this event. The licensee determined that a change in T_{cold} from 560°F to 542°F would result in a peak RCS pressure increase of 8 psi (i.e., an increase from 2592 psia to 2600 psia). Linear extrapolation of this result to a T_{cold} of 533°F (TS value of 535°F minus 2°F for measurement uncertainty), with a factor of 2 for conservatism, would result in a peak RCS pressure increase of less than 10 psi. Accordingly, the peak RCS pressure achieved according to this sensitivity analysis would be approximately 2610 psia which is less than the limit of 2750 psia. In addition, the licensee evaluated this event with regard to the potential for liquid discharge from the primary safety valves and concluded that no liquid discharge will result.

The LOCA events were also evaluated for the impact of the proposed change. The large break LOCA analysis of record was performed using a minimum T_{cold} value of 530°F which bounds the proposed minimum value of 533°F (proposed minimum TS value of 535°F minus 2°F for measurement uncertainty). The small break LOCA analysis was determined to not be affected by the proposed change because the analysis is not limiting at the minimum value of T_{cold} . In addition, the peak cladding temperature for the limiting small break LOCA event occurs as a consequence of a period of partial core uncover. The amount of core uncover is primarily determined by the competing effects of decay heat induced core boiloff and injection from the high pressure safety injection pumps. The initial T_{cold} does not have a significant influence on the amount of core uncover or the resultant peak cladding temperature. Post-LOCA long term cooling was also evaluated and determined to not be impacted by the proposed change.

The Core Operating Limits Supervisory System (COLSS) uses on-line departure from nucleate boiling ratio (DNBR) calculations based on measured power, pressure, temperature, flow, and axial shape to assure that required thermal margin is maintained. The Core Protection Calculator System (CPCS) uses on-line DNBR calculations, based on inputs independent of the COLSS inputs, as part of its low DNBR trip logic. The COLSS and CPCS setpoints are verified or modified at least once each fuel cycle to account for cycle-specific changes to core parameters. The licensee assessed the impact of the proposed changes on the safety analysis events that are used to provide setpoints for the COLSS and the CPCS. This assessment identified those events for which the proposed TS changes would potentially affect the cycle-specific setpoints. The events identified were 15.1.2.3, "Increased Main Steam Flow With a Concurrent Single Failure of an Active Component," 15.3.2.1, "Total Loss of Forced Reactor Coolant Flow," and 15.4.1.3, "Control Element Assemble Misoperation." For each of these events, the licensee stated in its June 19, 1998, letter that it will perform the Cycle 10 analyses consistent with the proposed TS change. In addition, the licensee will continue to implement its ongoing core analysis processes that will evaluate and appropriately modify the COLSS and CPCS setpoints to preserve DNBR margin.

As part of its justification to support the proposed reduction in the RCS cold leg temperature, the licensee performed an evaluation of the structural integrity for the reactor coolant system (RCS) and components. The key design parameters (i.e., RCS pressure, hot leg temperature, cold leg temperature, SG steam pressure and SG outlet temperature) are provided in the licensee's January 13, 1999, letter for the design basis analysis and the proposed operation at

the full power condition. The licensee reviewed the design basis specification and analyses for the reactor vessel and internals, RCS coolant piping and attached nozzles, the pressurizer, surge line (stratification), pressurizer spray nozzles, the steam generators (SGs), the reactor coolant pumps (RCPs), and fuel assemblies. On the basis of its review, the licensee concluded that the proposed T_{cold} reduction does not impact the design basis analyses, with regard to stresses and fatigue usage factors, for the primary side components evaluated.

The licensee also evaluated the effect of the T_{cold} reduction on the hydraulic forces applied to the components. The reduction in T_{cold} increases the fluid density and thus, increases the loading on the components during a postulated loss-of-coolant-accident (LOCA). The original plant design-basis loadings were based on the postulated breaks in the main coolant loop (MCL) piping. In April 1996, the staff approved implementation of the leak-before-break (LBB) methodology at SONGS. The LBB methodology allows elimination of postulated double-ended MCL breaks. Consequently, only the branch line breaks need to be postulated which greatly reduces the licensing basis loads associated with an LOCA condition. The staff agrees with the licensee's conclusion that the decrease in postulated pipe break loads resulting from the LBB methodology is sufficient to offset the effects of the reduced cold leg temperature.

The licensee evaluated the SG components by reviewing the existing calculations against the increase in the hydraulic loading due to higher fluid density (or the reduction of cold leg temperature) and the increase in the primary to secondary pressure difference due to the decrease in the operating secondary pressure. The licensee's review identified certain components (i.e., tubes, secondary shell and feedwater nozzles) for which the loads (i.e., the increase in pressure difference, the fluid flow changes on tube vibration, the changes in transients, etc.) that result from the proposed reduced cold leg temperature exceed those in the design analyses. The licensee analyzed these components. The licensee discussed its analysis results in its January 13, 1999, letter. The licensee concluded that the tube fluid-elastic stability ratio, stresses and fatigue usage factors calculated at the critical location will be within the allowable limits for the proposed condition. Based on its review of the licensee's analysis, the staff agrees with this conclusion.

The staff has reviewed the licensee's evaluations and the analyses discussed above, and based on the acceptable results of the analyses, finds the proposed changes acceptable. In addition, the staff determined that the licensee performed safety-related setpoint calculations based on the guidance from ISA 67.04, 1982 and Regulatory Guide 1.105, Revision 2, "Instrument Setpoints for Safety-Related Systems." The staff therefore finds that the licensee's safety-related setpoint calculation methodology acceptable.

2.2 Conversion of Minimum Flow Rate from Mass Units to Volumetric Units

The licensee proposed to modify TS LCO 3.4.1.c. to convert the minimum RCS flow rate requirement from mass (lbm/hr) units to volumetric (gpm) units. The proposed conversion would change the stated minimum RCS flow rate from 148E6 lbm/hr to 396,000 gpm. Changes to Surveillance Requirement 3.4.1.3 were requested consistent with the proposed changes to this LCO.

To support this proposed TS change, the licensee reviewed the relevant UFSAR events for San Onofre Units 2 and 3 with regard to the impact of the proposed change. The licensee determined that for the events where the minimum flow rate is limiting, the values used in the analyses are consistent with the proposed change. In addition, the licensee proposed a change to the TS bases for Surveillance Requirement 3.4.1.3 to clarify that when a heat balance is used for calculating the RCS flow rate, the volumetric flow rate is calculated using fluid conditions at the discharge of the reactor coolant pumps. This is consistent with the assumptions in the DNBR analyses and are, therefore, acceptable.

2.3 Elimination of the Maximum RCS Total Flow Rate

The licensee proposed to modify TS LCO 3.4.1.c. to eliminate the maximum RCS flow rate requirement of 177.6E6 lbm/hr. Changes to Surveillance Requirement 3.4.1.3 were requested consistent with the changes to this LCO.

The licensee reviewed the relevant UFSAR events for San Onofre Units 2 and 3 with regard to the impact of the proposed change. The licensee determined that for the events where the maximum flow rate is limiting, the values used in the analyses correspond to the maximum flow rate that the pumps can deliver. For these analyses, the licensee used a value of 112 percent of design volumetric flow rate. The design volumetric flow rate is 396,000 gpm. Measured flow rates at initial startup for SONGS 2 and 3 were 107 percent and 106.3 percent of design volumetric flow rate. These values are expected to stay constant except for the effect of increased system hydraulic resistance due to steam generator tube plugging which act to reduce the flow rate. Additionally, a 95/95 flow measurement uncertainty of 5 percent was calculated. Accordingly, a value of 112 percent of design volumetric flow rate was used in analyses where the maximum flow rate was limiting. The staff has reviewed this change against the UFSAR Chapter 15 accident analyses, and determined the analysis results remain acceptable. In addition, the staff noted that the licensee's safety-related calculation methodology is based on ISA 67.04, 1982 and Regulatory Guide 1.105, Revision 2. The staff therefore finds that the licensee's safety-related setpoint calculation methodology acceptable.

The proposed amendment changes the current TS minimum RCS flow rate of 148×10^6 lbm/hour to a volumetric RCS flow of 396,000 gpm (which is equivalent to 148×10^6 lbm/hour at 553°F and 2250 psia). The current TS allows plant operation at T_{cold} between 544°F and 558°F for power levels greater than 70 percent of the rated thermal power. At a temperature lower than 553°F, the proposed minimum volumetric flow rate is equivalent to a mass flow rate slightly higher than the minimum mass flow rate of 148×10^6 lbm/hour specified in the current TS.

In its December 4, 1998, letter, the licensee indicated that the actual maximum flow output of the RCP is less than 112 percent (including a 5 percent flow rate measurement uncertainty) of the current minimum RCS flow rate allowed by the current TS at SONGS. The current maximum design-basis flow rate is approximately 120 percent of the minimum RCS flow rate. Therefore, the actual maximum flow that the RCP can deliver is bounded by the existing maximum design basis flow rate, which has been previously evaluated by the licensee.

The licensee concluded that the use of the minimum volumetric flow rate of 396,000 gpm and the elimination of the maximum RCS flow rate limit do not have an adverse effect on the structural and pressure boundary integrity of the reactor coolant system components. Based on its review of the licensee's analyses, the staff agrees with the licensee's assessment.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the California State official was notified of the proposed issuance of the amendments. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change surveillance requirements. The NRC staff has determined that the amendments involve 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 the amendments involve no significant hazards consideration, and there has been no public comment on such finding (63 FR 48266). Accordingly, the amendments meet 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 the amendments.

5.0 CONCLUSION

The Commission has 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 the amendments will not be inimical to the common defense and security or to the health and safety of the public.

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