



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

September 25, 1998

52-301

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 UNDER EMERGENCY CONDITIONS FOR
SAN ONOFRE NUCLEAR GENERATING STATION, UNIT NO. 2 (TAC NO.
MA3624)

Dear Mr. Ray:

The Commission has issued the enclosed Amendment No. 142 to Facility Operating License No. NPF-10 San Onofre Nuclear Generating Station, Unit No. 2. The amendment consists of changes to the Technical Specifications (TS) in response to your application dated September 22, 1998. This amendment request was treated as an emergency amendment in accordance with 10 CFR 50.91(a)(5).

The amendment revises the TS to change the operative parameter for setting and removing the operating bypass bistables for Logarithmic Power Level - High, Reactor Coolant Flow - Low, Local Power Density - High, and Departure from Nucleate Boiling Ratio - Low trips. The operative parameter specified in the TS is being changed from "THERMAL POWER" to logarithmic power. This change makes the TS consistent with both the TS Bases and with the design bases to ensure the reactor protection setpoints are enabled for their specified operating conditions.

This amendment corrects an inconsistency in the San Onofre Nuclear Generating Station (SONGS) Unit 2 TS that was identified by Southern California Edison (SCE) personnel. By identifying this TS inconsistency, SCE personnel demonstrated a commitment to verbatim compliance with the TS and a questioning attitude with regard to the meaning of TS requirements. The staff recognizes this as a strength. However, the SCE application dated September 22, 1998, did not include a discussion of the design basis as described in the SONGS Final Safety Analysis Report (FSAR) for the process parameter used for establishing the bypass and its removal. The staff identified pertinent sections of the SONGS FSAR and included them in the enclosed safety evaluation. The staff considers the lack of a FSAR design basis discussion in the September 22, 1998, submittal to be a weakness.

This amendment addresses the change to the SONGS Unit 2 TS only. Since the emergency circumstances do not apply to Unit 3, this change will be processed as a non-emergency TS change for Unit 3 and will be issued separately.

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Mr. Harold B. Ray

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September 25, 1998

A copy of our related Safety Evaluation is 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 No. 50-361

Enclosures: 1. Amendment No. 142 to NPF-10
2. Safety Evaluation

cc w/encls: See next page

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Mr. Harold B. Ray

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September 25, 1998

cc w/encl:

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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. 142
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 September 22, 1998, 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. 142, 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.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, reading "William H. Bateman". The signature is fluid and cursive, with the first name "William" and last name "Bateman" clearly distinguishable.

William H. Bateman, Project Director
Project Directorate IV-2
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: September 25, 1998

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 142 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

3.3-8

3.3-9

INSERT

3.3-8

3.3-9

Table 2.3.1-1 (page 1 of 2)
Reactor Protective System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Linear Power Level - High	1,2	SR 3.3.1.1 SR 3.3.1.4 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.8 SR 3.3.1.9 SR 3.3.1.13	≤ 111.04 RTP
2. Logarithmic Power Level - High ^(a)	2 ^(b)	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.12 SR 3.3.1.13	$\leq .934$ RTP
3. Pressurizer Pressure - High	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.13	≤ 2385 psia
4. Pressurizer Pressure - Low ^(c)	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.12 SR 3.3.1.13	≥ 1700 psia
5. Containment Pressure - High	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.13	≤ 3.4 psig
6. Steam Generator 1 Pressure-Low	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.13	≥ 729 psia
7. Steam Generator 2 Pressure-Low	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.13	≥ 729 psia

(continued)

- (a) Trip may be bypassed when logarithmic power is $> 1E-44$ RTP. Bypass shall be automatically removed when logarithmic power is $\leq 1E-44$ RTP. Trip may be manually bypassed during physics testing pursuant to LCO 3.1.12.
- (b) When any RTCB is closed.
- (c) The setpoint may be decreased to a minimum value of 300 psia, as pressurizer pressure is reduced, provided the margin between pressurizer pressure and the setpoint is maintained ≤ 400 psia. Trips may be bypassed when pressurizer pressure is < 400 psia. Bypass shall be automatically removed before pressurizer pressure exceeds 500 psia (the corresponding bistable allowable value is ≤ 472 psia).

Table 3.3.1-1 (page 2 of 2)
Reactor Protective System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
8. Steam Generator 1 Level - Low	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.13	$\geq 20\%$
9. Steam Generator 2 Level - Low	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.13	$\geq 20\%$
10. Reactor Coolant Flow - Low ^(d)	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.12 SR 3.3.1.13	Ramp: ≤ 0.231 psid/sec. Floor: ≥ 12.1 psid Step: ≤ 7.25 psid
11. Local Power Density - High ^(d)	1,2	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.11 SR 3.3.1.12 SR 3.3.1.13	≤ 21.0 kW/ft
12. Departure From Nucleate Boiling Ratio (DNBR) - Low ^(d)	1,2	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.11 SR 3.3.1.12 SR 3.3.1.13	≥ 1.31

(d) Trip may be bypassed when logarithmic power is $< 1E-4\%$ RTP. Bypass shall be automatically removed when logarithmic power is $\geq 1E-4\%$ RTP. During testing pursuant to LCO 3.1.12, trip may be bypassed below 5% RTP. Bypass shall be automatically removed when logarithmic power is $\geq 5\%$ RTP.



UNITED STATES
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WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 142 TO FACILITY OPERATING LICENSE NO. NPF-10

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, UNIT 2

DOCKET NO. 50-361

1.0 INTRODUCTION

By application dated September 22, 1998, Southern California Edison Company, et al. (SCE or the licensee) requested changes to the Technical Specifications (Appendix A to Facility Operating License Nos. NPF-10 and NPF-15) for San Onofre Nuclear Generating Station, Unit Nos. 2 and 3. The current technical specifications (TS) for the operating bypass removal bistable for Logarithmic Power Level - High, Reactor Coolant Flow - Low, Local Power Density - High, and Departure from Nucleate Boiling Ratio - Low currently use "THERMAL POWER" as the input process parameter. Thermal power is a term that includes decay heat, which is not a directly measurable parameter, thus is not a reasonable parameter for automatically establishing bistable conditions. The proposed changes would revise the input process parameter for these bistables from "THERMAL POWER" to "logarithmic power."

2.0 EVALUATION

TS Table 3.3.1-1, "Reactor Protective System Instrumentation," includes Notes "a" and "d" that identify operating bypass permissive and enable bistable values. Note "a" permits bypassing the Logarithmic Power Level - High (log power) trip when THERMAL POWER is $> 1E-4\%$ rated thermal power (RTP). Note "a" also requires automatic enable (specified in the TS as "automatic removal" of the bypass) of the log power trip to occur when THERMAL POWER is $\leq 1E-4\%$ RTP during a decrease in reactor power. Note "a" is applicable in Mode 2. Note "d" permits bypassing the Reactor Coolant Flow - Low, Local Power Density - High, and Departure From Nucleate Boiling Ratio - Low (RCS Flow/LPD/DNBR) trips when THERMAL POWER is $< 1E-4\%$ RTP. Note "d" also requires automatic enable of the RCS Flow/LPD/DNBR trips to

occur when THERMAL POWER is $\geq 1\text{E-4}\%$ RTP during an increase in reactor power. Note "d" is applicable in Modes 1 and 2.

TS 1.1 defines THERMAL POWER as follows:

"THERMAL POWER shall be the total core heat transfer rate to the reactor coolant."

Thus, "THERMAL POWER" includes the decay heat produced in the core. This definition means that "THERMAL POWER" for SONGS Units 2 and 3 will not decay to less than or equal to $1\text{E-4}\%$ RTP for many years after shutdown. In addition, "THERMAL POWER" is not a directly measurable parameter. Since "THERMAL POWER" will not decrease to less than or equal to $1\text{E-4}\%$ RTP for normal duration plant outages, TS Table 3.3.1-1, note "d," would require the RCS Flow/LPD/DNBR trip bypasses to be removed during planned startup when the plants enter Mode 2. These trip setpoints have a wide variability at this power level due to large uncertainties in the measured parameters. This condition is expected to produce a trip signal as soon as the trip bypasses are removed. Therefore strict adherence to the notes as currently written would preclude plant startups.

The TS notes themselves require automatic removal of the bypasses under specified conditions, which would require the use of a measurable parameter. Since the decay heat component of "THERMAL POWER" is not directly measurable, it is not suitable for use for an automatic action. The use of logarithmic nuclear instrumentation instead of "THERMAL POWER" as the process parameter would also make the TS consistent with the design bases for establishing and removing the bypasses. The SONGS Unit 2 and 3 TS 3.3.1 Bases, as well as the Bases for the Standard TS for Combustion Engineering designed plants (NUREG-1432) use logarithmic nuclear instrumentation to establish the $1\text{E-4}\%$ RTP bypass/enable. Final Safety Analysis Report (FSAR) Section 7.2 describes the bypass setpoints in terms of power, without specifying the specific parameter used. This section does, however, describe setpoints in terms of measured parameters. In addition, FSAR Section 15.4.1.1.3.B.1 states that the bypass setting of $1\text{E-4}\%$ power is established based on logarithmic power. Thus the intended, as well as the only physically possible means of generating a signal from a measured parameter to automatically remove the bypass, and the intended parameter used to determine when these trips can be bypassed, is neutron flux, which is measured by logarithmic nuclear instrumentation.

Since neutron flux is, by design, the correct input process variable for the operating bypass permissive and enable bistable values described in TS Table 3.3.1-1 notes "a" and "d," the change to replace "THERMAL POWER" with logarithmic power is acceptable.

3.0 DESCRIPTION OF EMERGENCY CIRCUMSTANCES

The Commission's regulations in 10 CFR 50.91 contain provisions for issuance of an amendment where the Commission finds that emergency circumstances exist, in that failure to act in a timely way would result in prevention of either resumption of operation or increase in power up to the rated plant's licensed power limit. The emergency exists in this case in that the proposed amendment is needed to allow resumption of operation of SONGS Unit 2. The same

restraint does not apply to SONGS Unit 3, therefore the amendment for Unit 3 will be processed on a non-emergency basis.

SONGS Unit 2 is currently in an unscheduled outage to repair a leaking steam generator tube plug. On September 21, 1998, SCE engineers reviewed the setpoints for the Logarithmic Power Level, Reactor Coolant Flow, Local Power Density, and Departure from Nucleate Boiling Ratio operating bypass removal bistables. In the course of their review, they identified that the TS notes for the subject bypass bistables describes them in terms of "THERMAL POWER" whereas the process variable being measured is logarithmic power as sensed by the neutron flux instrumentation. Replacing "THERMAL POWER" with "logarithmic power" in these notes corrects this condition. By submittal dated September 22, 1998, SONGS requested a license amendment to correct this condition. This condition was previously unidentified.

The staff has determined that the licensee used its best efforts to make a timely application. Accordingly, the Commission has determined that emergency circumstances exist pursuant to 10 CFR 50.91(a)(5) and could not have been avoided, that the submittal was timely for Unit 2, and that the licensee did not create the emergency condition.

4.0 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;
- (2) Create the possibility of a new or different kind of accident from any 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 and the staff's final determination is presented below. It does not involve a significant hazards consideration because the change would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed changes do not adversely impact structure, system, or component design or operation in a manner which would result in a change in the frequency of occurrence of accident initiation. The reactor trip bypass and automatic enable functions are not accident initiators. Consequently, the proposed TS changes will not significantly increase the probability of accidents previously evaluated. Clarifying the input process variable of the operating bypasses and automatic bypass removals of the affected reactor trips does not alter the setpoint nor manner of operation of the operating bypasses and automatic

bypass removals. Therefore, the consequences of previously evaluated accidents remain unchanged.

2. Create the possibility of a new or different kind of accident from any previously evaluated.

No new or different accidents result from clarifying the input process variable of the operating bypasses and automatic bypass removals of the affected reactor trips. The results of previously performed accident analyses remain valid. Therefore, this amendment request does not create the possibility of a new or different kind of accident.

3. Involve a significant reduction in a margin of safety.

The proposed change does not alter the setpoint nor the manner of operation of the operating bypasses and automatic bypass removals of the affected reactor trips. The change merely replaces the identification of the input process variable with the appropriate identification of power. Therefore, this amendment request does not involve a significant reduction in any margin of safety.

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

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the staff consulted with California State official for comment on the proposed issuance of the amendment. The California State official had no comment on the proposed amendment.

6.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC 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 made a final finding that the amendment involves no significant hazards consideration. Accordingly, the 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 the amendment.

7.0 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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: M. Gray

Date: September 25, 1998