

1996

December 6, 1

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

SUBJECT: ISSUANCE OF AMENDMENT FOR SAN ONOFRE NUCLEAR GENERATING STATION,  
UNIT NO. 2 (TAC NO. M95853) AND UNIT NO. 3 (TAC NO. M94854)

Dear Mr. Ray:

The Commission has issued the enclosed Amendment No. 135 to Facility Operating License No. NPF-10 and Amendment No. 124 to Facility Operating License No. NPF-15 for San Onofre Nuclear Generating Station (SONGS), Unit Nos. 2 and 3. The amendments consist of changes to the Technical Specifications (TS) in response to your application dated May 29, 1996.

These amendments revise TS Surveillance Requirement 3.5.1.4 for SONGS Units 2 and 3 to increase the minimum boron concentration in the safety injection tanks from 1850 ppm boron to 2200 ppm boron. The proposed change is required to support the operating cycle length extension to approximately 590 effective full power days.

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  
Mel B. Fields, 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. 135 to NPF-10  
2. Amendment No. 124 to NPF-15  
3. Safety Evaluation

cc w/encls: See next page

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NAME	KThomas:ye	MFields	EPeyton	RJones	Cmarco
DATE	11/18/96	11/18/96	11/18/96	11/21/96	11/29/96

*A note change - incorporated*  
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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.135  
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 May 29, 1996, 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. 135, 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 to be implemented within 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Mel B. Fields, 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: December 6, 1996

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 135 TO FACILITY OPERATING LICENSE NO. NPF-10

DOCKET NO. 50-361

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

REMOVE

3.5-2

INSERT

3.5-2

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.5.1.1    Verify each SIT isolation valve is fully open.	12 hours
SR 3.5.1.2    Verify borated water volume in each SIT is $\geq 1680$ cubic feet and $\leq 1807$ cubic feet.	12 hours
SR 3.5.1.3    Verify nitrogen cover pressure in each SIT is $\geq 615$ psia and $\leq 655$ psia.	12 hours
SR 3.5.1.4    Verify boron concentration in each SIT is $\geq 2200$ ppm and $\leq 2800$ ppm.	31 days <u>AND</u> -----NOTE----- Only required to be performed for affected SIT ----- Once within 6 hours after each solution volume increase of $\geq 1\%$ of tank volume that is not the result of addition from the refueling water storage tank

(continued)



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. 124  
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 May 29, 1996, 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. 124 , 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 to be implemented within 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Mel B. Fields, 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: December 6, 1996

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 124 TO FACILITY OPERATING LICENSE NO. NPF-15

DOCKET NO. 50-362

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

REMOVE

3.5-2

INSERT

3.5-2

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE	FREQUENCY
SR 3.5.1.1    Verify each SIT isolation valve is fully open.	12 hours
SR 3.5.1.2    Verify borated water volume in each SIT is $\geq$ 1680 cubic feet and $\leq$ 1807 cubic feet.	12 hours
SR 3.5.1.3    Verify nitrogen cover pressure in each SIT is $\geq$ 615 psia and $\leq$ 655 psia.	12 hours
SR 3.5.1.4    Verify boron concentration in each SIT is $\geq$ 2200 ppm and $\leq$ 2800 ppm.	31 days <u>AND</u> -----NOTE----- Only required to be performed for affected SIT ----- Once within 6 hours after each solution volume increase of $\geq$ 1% of tank volume that is not the result of addition from the refueling water storage tank

(continued)



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 135 TO FACILITY OPERATING LICENSE NO. NPF-10  
AND AMENDMENT NO. 124 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 application dated May 29, 1996, Southern California Edison Company (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 (SONGS), Unit Nos. 2 and 3. The proposed changes would revise Technical Specification (TS) Surveillance Requirement 3.5.1.4 for SONGS Units 2 and 3 to increase the minimum boron concentration in the safety injection tanks (SITs) from 1850 ppm boron to 2200 ppm boron. The proposed change is required to support the operating cycle length extension to approximately 590 effective full power days.

2.0 DISCUSSION

SCE is extending the operating cycle for SONGS, Unit Nos. 2 and 3, to approximately 590 effective full power days. To accomplish this cycle length extension, SCE is increasing the initial Uranium-235 fuel enrichment above 4.1 w/o up to 4.8 w/o and changing the burnable poison from B<sub>4</sub>C to Erbia. Erbia is an Asia Brown Boveri Combustion Engineering term used to describe an Erbium-Oxide Er<sub>2</sub>O<sub>3</sub> and fuel mixture.

Based on the completed analyses supporting Cycle 9 core reload analysis, TS Surveillance Requirement 3.5.1.4 needs to be changed to support the planned increased cycle length to increase the minimum boron concentration in the SITs from 1850 ppm to 2200 ppm.

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### 3.0 EVALUATION

The SITs have a minimum boron concentration limit to ensure the reactor remains subcritical by at least 1 percent shutdown margin (Mode 3) during the post LOCA refill, reflood, and recirculation phases. The SITs have a maximum limit on boron concentration to prevent boron precipitation from the coolant during the post-LOCA time frame.

The SIT minimum boron requirement is based on beginning-of-life reactivity values and is selected to ensure that the reactor will remain subcritical during the refill stage of a large-break LOCA. During a large-break LOCA, no control element assembly (CEA) is assumed to insert into the core. The initial reactor shutdown is accomplished by void formation due to depressurization.

Sufficient boron concentration must be maintained in the SITs to prevent a return to criticality during the core refill. The minimum SIT boron concentration is based upon the requirement to maintain the reactor core subcritical without assistance from the CEAs or any other boron source.

SCE is increasing the fuel enrichment up to 4.8 w/o and changing the burnable poison from B<sub>4</sub>C to Erbia to achieve a longer cycle length. Erbia is an Asia Brown Boveri Combustion Engineering term used to describe an Erbium-Oxide Er<sub>2</sub>O<sub>3</sub> and fuel mixture. This change in core configuration requires additional negative reactivity at the start of the fuel cycle. Therefore, for the SITs to perform their design function post-LOCA with the increase in fuel enrichment, the minimum required boron concentration in the tanks needs to be increased.

In its May 29, 1996 amendment request, SCE provided a technical summary of the SIT boron concentration change calculations that were performed based on the increase in fuel enrichment to ensure the core remains subcritical (i.e., conservatively 1 percent shutdown) with the proposed minimum boron concentration of 2200 ppm. The required SIT boron concentration was conservatively calculated to be less than 2150 ppm. In addition to the conservative assumptions used in the calculation, 50 ppm was added to the results. As a result, the licensee proposes to increase the minimum boron concentration in the SITs from 1850 ppm to 2200 ppm.

As indicated above, the upper limit on SIT boron concentration is set to ensure boron precipitation will not occur during post LOCA recirculation. No change in the upper boron concentration limit is required to maintain this acceptance criteria. No other accident conditions, design conditions, TSs, or TS Bases are affected by this proposed change in boron concentration.

The SITs are filled from the refueling water storage tank (RWST), which has a TS minimum boron concentration requirement of 2350 ppm. In its May 29, 1996 amendment application, SCE stated that it maintains the RWST boron concentration higher than the minimum limit, and, as a result, for the past several years, the SIT boron concentration has been approximately 2500 ppm. Therefore, changing the SIT minimum boron concentration from 1850 ppm to

2200 ppm does not involve a physical change in the plant or impact plant operation.

In addition, the licensee reviewed surveillance data from the past two years and found little change in boron concentration as a function of time. Therefore, the 31 day surveillance test frequency remains acceptable.

Based on the above, the staff finds SCE's proposal to increase the minimum required TS boron concentration in the SITs from 1850 ppm to 2200 ppm acceptable.

#### 4.0 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.

#### 5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restructured area as defined in 10 CFR Part 20. 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 (61 FR 40029). 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.

#### 6.0 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.

Principal Contributor: Kris Thomas

Date: December 6, 1996