

Docket Nos. 50-361  
and 50-362

August 12, 1991

Mr. Harold B. Ray  
Senior Vice President  
Southern California Edison Co.  
Irvine Operations Center  
23 Parker Street  
Irvine, California 92718

Mr. Gary D. Cotton  
Senior Vice President  
Engineering and Operations  
San Diego Gas & Electric Co.  
101 Ash Street  
San Diego, California 92112

Gentlemen:

SUBJECT: ISSUANCE OF AMENDMENT FOR SAN ONOFRE NUCLEAR GENERATING STATION,  
UNIT NO. 2 (TAC NO. 80157) AND UNIT NO. 3 (TAC NO. 80158)

The Commission has issued the enclosed Amendment No. 97 to Facility Operating License No. NPF-10 and Amendment No. 86 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 April 15, 1991 and supplemented May 7, 1991, designated by you as PCN-346.

These amendments remove the shutdown cooling system auto-closure interlock surveillance requirement on TS 3/4 5.2 "ECCS Systems - Tavg Greater Than or Equal to 350°F." Removal of the auto-closure interlock is consistent with the recommendation in Generic Letter 88-17, "Loss of Decay Heat Removal," and will enhance plant safety during mid-loop operation.

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

Sincerely,

ORIGINAL SIGNED BY

Lawrence E. Kokajko, Project Manager  
Project Directorate V  
Division of Reactor Projects III/IV/V  
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 97 to NPF-10
2. Amendment No. 86 to NPF-15
3. Safety Evaluation

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*Handwritten signatures and initials:*  
Cesaro  
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UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555

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Sincerely,

A handwritten signature in cursive script, appearing to read "L. S. Kokajko".

Lawrence E. Kokajko, Project Manager  
Project Directorate V  
Division of Reactor Projects III/IV/V  
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 97 to NPF-10
2. Amendment No. 86 to NPF-15
3. Safety Evaluation

cc w/enclosures:  
See next page

Messrs. Ray and Cotton  
Southern California Edison Company

San Onofre Nuclear Generating  
Station, Unit Nos. 2 and 3

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

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. 97  
License No. NPF-10

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Southern California Edison Company, San Diego Gas and Electric Company, the City of Riverside, California, and the City of Anaheim, California (licensees) (the licensee) dated April 15, 1991 and supplemented May 7, 1991, 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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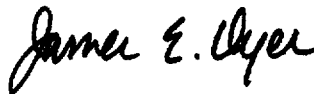
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C(2) of Facility Operating License No. NPF-10 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 97 , 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 must be fully implemented no later than 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



James E. Dyer, Director  
Project Directorate V  
Division of Reactor Projects III/IV/V  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: August 12, 1991

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 97 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 the captioned amendment number and contain marginal lines indicating the areas of change.

REMOVE

3/4 5-4

INSERT

3/4 5-4

## EMERGENCY CORE COOLING SYSTEMS

### SURVEILLANCE REQUIREMENTS

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#### 4.5.2 Each ECCS subsystem shall be demonstrated OPERABLE:

- a. At least once per 12 hours by verifying that the following valves are in the indicated positions with power to the valve operators removed:

<u>Valve Number</u>	<u>Valve Function</u>	<u>Valve Position</u>
a. HV9353	SDC Warmup	CLOSED
b. HV9359	SDC Warmup	CLOSED
c. HV8150	SDC(HX) Isolation	CLOSED
d. HV8151	SDC(HX) Isolation	CLOSED
e. HV8152	SDC(HX) Isolation	CLOSED
f. HV8153	SDC(HX) Isolation	CLOSED
g. HV0396	SDC Bypass Flow Control	CLOSED
h. HV8161	SDC(HX) Bypass Flow Isolation	OPEN
i. HV9420	Hot Leg Injection Isolation	CLOSED
j. HV9434	Hot Leg Injection Isolation	CLOSED
k. HV8160	SDC Bypass Flow Control	OPEN
l. HV8162	LPSI Miniflow Isolation	OPEN
m. HV8163	LPSI Miniflow Isolation	OPEN

- b. At least once per 31 days by:
1. Verifying that the ECCS piping is full of water by venting the ECCS pump casings and accessible discharge piping high points, and
  2. Verifying that each valve (manual, power operated or automatic) in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.
- c. By a visual inspection which verifies that no loose debris (rags, trash, clothing, etc.) is present in the containment which could be transported to the containment sump and cause restriction of the pump suction during LOCA conditions. This visual inspection shall be performed:
1. For all accessible areas of the containment prior to establishing CONTAINMENT INTEGRITY, and
  2. Of the areas affected within containment at the completion of containment entry when CONTAINMENT INTEGRITY is established.
- d. At least once per refueling interval by:
1. Verifying automatic interlock action of the shutdown cooling system with the Reactor Coolant System by ensuring that when simulated RCS pressure is greater than or equal to 376 psia, the interlocks prevent opening the shutdown cooling system isolation valves.



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

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. 86  
License No. NPF-15

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Southern California Edison Company, San Diego Gas and Electric Company, the City of Riverside, California, and the City of Anaheim, California (licensees) (the licensee) dated April 15, 1991 and supplemented May 7, 1991, 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. 86 , 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 must be fully implemented no later than 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



James E. Dyer, Director  
Project Directorate V  
Division of Reactor Projects III/IV/V  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: August 12, 1991

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 86 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 the captioned amendment number and contain marginal lines indicating the areas of change.

REMOVE

3/4 5-4

INSERT

3/4 5-4

# EMERGENCY CORE COOLING SYSTEMS

## SURVEILLANCE REQUIREMENTS

4.5.2 Each ECCS subsystem shall be demonstrated OPERABLE:

- a. At least once per 12 hours by verifying that the following valves are in the indicated positions with power to the valve operators removed:

<u>Valve Number</u>	<u>Valve Function</u>	<u>Valve Position</u>
a. HV9353	SDC Warmup	CLOSED
b. HV9359	SDC Warmup	CLOSED
c. HV8150	SDC(HX) Isolation	CLOSED
d. HV8151	SDC(HX) Isolation	CLOSED
e. HV8152	SDC(HX) Isolation	CLOSED
f. HV8153	SDC(HX) Isolation	CLOSED
g. HV0396	SDC Bypass Flow Control	CLOSED
h. HV8161	SDC(HX) Bypass Flow Isolation	OPEN
i. Deleted		
j. Deleted		
k. HV9420	Hot Leg Injection Isolation	CLOSED
l. HV9434	Hot Leg Injection Isolation	CLOSED
m. HV8160	SDC Bypass Flow Control	OPEN
n. HV8162	LPSI Miniflow Isolation	OPEN
o. HV8163	LPSI Miniflow Isolation	OPEN

- b. At least once per 31 days by:

1. Verifying that the ECCS piping is full of water by venting the ECCS pump casings and accessible discharge piping high points, and
2. Verifying that each valve (manual, power operated or automatic) in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.

- c. By a visual inspection which verifies that no loose debris (rags, trash, clothing, etc.) is present in the containment which could be transported to the containment sump and cause restriction of the pump suction during LOCA conditions. This visual inspection shall be performed:

1. For all accessible areas of the containment prior to establishing CONTAINMENT INTEGRITY, and
2. Of the areas affected within containment at the completion of : containment entry when CONTAINMENT INTEGRITY is established.

- d. At least once per refueling interval by:

1. Verifying automatic interlock action of the shutdown cooling system with the Reactor Coolant System by ensuring that when simulated RCS pressure is greater than or equal to 376 psia, the interlocks prevent opening the shutdown cooling system isolation valves.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO.97 TO FACILITY OPERATING LICENSE NO. NPF-10  
AND AMENDMENT NO. 86 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, UNIT NOS. 2 AND 3

DOCKET NOS. 50-361 AND 50-362

1.0 INTRODUCTION

By letters dated April 15, 1991 and supplemented May 7, 1991, Southern California Edison Company, et al., (SCE or the licensee) submitted a request for changes to the Technical Specifications (TS) for San Onofre Nuclear Generating Station, Unit Nos. 2 and 3. The licensee requested amendments to remove the shutdown cooling system (SDC) auto-closure interlock (ACI) surveillance requirement on TS 3/4.5.4.2, "ECCS System - Tavg Greater Than or Equal to 350°F." Removal of the interlock is consistent with the recommendation in Generic Letter (GL) 88-17, "Loss of Decay Heat Removal," which will enhance plant safety during mid-loop operations.

The proposed changes will remove the ACI and strengthen administrative procedures. Over the past several years, there has been increased effort to improve the reliability of the shutdown cooling system (SDCS) in pressurized water reactors. It was recognized that ACIs on suction isolation valves of the SDCS have been a frequent cause of loss of SDCS events. The present Technical Specification requires surveillance of the ACI. The proposed changes would delete this requirement but retain the surveillance of the Open Permissive Interlock (OPI). Testing of the SDCS isolation valves position alarms has been added to the Updated Final Safety Analysis Report (UFSAR).

2.0 EVALUATION

The staff review of this issue has focused on the effect that the proposed change has on the Event V (intersystem LOCA outside of containment) sequence and on the availability of the SDCS. We have reviewed the licensee's PRA analysis of the Event V sequence. We have reviewed and approved the removal of the ACI for several other plants. Most of the plants for which ACI removal has been approved did not have the alarm on the SDCS isolation valve position.

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Thus, they were removing the ACI and adding the alarm as well as administrative controls. San Onofre already had the alarm. Combustion Engineering performed the evaluation of the removal of the ACI as a means to improve shutdown cooling for San Onofre Units 2 and 3. The evaluation addresses the seven guidelines for ACI removal recommended by the NRC in a memorandum from Brian Sheron dated January 28, 1985.

1. The means available to minimize Event V concerns.

San Onofre Units 2 and 3 have a double barrier between the RCS and the SDC system. Procedural controls, training, alarms and the OPI minimize the potential that the the double barrier will not be available.

2. Alarms to notify the operator that SDCS suction valves are mispositioned.

Visual and audible alarms are provided in the main control room to inform the operator that any of the SDC system suction valves are not fully closed when the RCS pressure is above the SDC system pressure setpoint. The alarms will be tested at each refueling to ensure reliability and are designed to alert the operator upon alarm circuit failure.

3. Verification of the adequacy of relief valve capacity.

Original design calculations to ensure that relief devices in the SDCS suction lines has adequate capacity to prevent overpressurization of the SDCS have been reviewed to confirm that ACI was not credited in the selection of limiting events or mitigation of the resulting transients.

4. Means other than ACI to ensure that both isolation valves are closed.

The proposed modification uses alarms, position indication, procedures, and training to ensure that the double barrier is established upon heatup.

5. Assurance that the OPI is not affected by the change.

The OPI function will be maintained in its present form.

6. Assurance that valve position indication will remain available in the control room after the change.

The proposed change does not affect the existing valve position indication in the control room. The position indication is independent of the alarms.

7. Assessment of the effect of ACI removal on SDCS availability and LTOP.

CE performed an analysis on the impact of removing the ACI from the SDCS. The analysis was performed to determine the change in Interfacing System LOCA (ISLOCA) frequency, the change in DSCS unavailability and the impact on mitigating Low Temperature Overpressure Protection (LTOP) events due to removal of the ACI.

a. ISLOCA Results

The results indicate no change in the ISLOCA probability when the ACI is removed. (If the valve position alarm had not existed previously there would have been an approximately 13% decrease in the probability).

b. SDCS Unavailability Results

With the removal of the ACI the SDCS unavailability changes from 5.05E-02 to 3.07E-02. This change represents a 39% decrease in unavailability during refueling.

c. Mitigating LTOP Events

San Onofre Units 2 and 3 employ six inch valves in the SDCS with sufficient capacity to mitigate LTOP events that may occur during shutdown cooling operations. Because these valves are located downstream of the inside containment SDCS suction valves, inadvertent closure of the SDCS valves by ACI will isolate the relief valves and eliminate protection of the RCS piping if an LTOP event occurs. Since the removal of the ACI decreases the unavailability of the SDCS, the number of inadvertent closures of the SDCS decreases and the availability of the relief valves (for LTOP protection) increases.

### Conclusions

The ACI was originally provided to guard against an operator error, namely failure to isolate the SDC system from the RCS prior to raising the RCS pressure above the design pressure of the SDC system. The SDC system relief valve will prevent any transient pressure from exceeding the isolation valve ACI setpoint. The existing alarm in the control room for each valve warns the operators if the RCS pressure is greater than the valve setpoint and any of the SDC system suction isolation valves are not fully closed. The potential of an inadvertent closure of the SDC system isolation valves during SDC system operation due to the ACI circuit detracts from plant safety. Thus the SDC system relief valve and the alarm allow for the removal of the ACI without a negative impact on plant safety.

The staff finds that the removal of the ACI produces a safety benefit in the SDCS availability and no change in the ISLOCA frequency. Thus the total impact is a safety benefit and is acceptable. Therefore, the staff finds the proposed change to the San Onofre Nuclear Generating Station, Unit Nos. 2 and 3, Technical Specifications to be acceptable.

### 3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the California State official was notified of the proposed issuance of the amendment. 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 or a change to a surveillance requirement. 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 (56 FR 20046). 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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Margaret S. Chatterton  
Lawrence E. Kokajko

Date: August 12, 1991