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

SOUTHERN CALIFORNIA EDISON COMPANY

SAN DIEGO GAS AND ELECTRIC COMPANY

DOCKET NO. 50-206

SAN ONOFRE NUCLEAR GENERATING STATION, UNIT NO. 1

AMENDMENT TO PROVISIONAL OPERATING LICENSE

Amendment No. 103
License No. DPR-13

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Southern California Edison Company and San Diego Gas and Electric Company (the licensee) dated April 28, 1987 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 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 3.B. of Provisional Operating License No. DPR-13 is hereby amended to read as follows:

   B. Technical Specifications

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 103, are hereby incorporated in the license. Southern California Edison Company shall operate the facility in accordance with the Technical Specifications, except where otherwise stated in specific license conditions.

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

Charles M. Trammell

for George W. Knighton, Director
Project Directorate V
Division of Reactor Projects - III,
IV, V and Special Projects

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 9, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 103

PROVISIONAL OPERATING LICENSE NO. DPR-13

DOCKET NO. 50-206

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

REMOVE	INSERT
10	10
10d	10d
11	11
43c	43c

3.1.2 OPERATIONAL COMPONENTS

APPLICABILITY: Applies to the operating status of the reactor coolant system equipment and related equipment. For the applicable surveillance requirements, see Table 4.1.2.

OBJECTIVE: To identify those conditions of the reactor coolant system necessary to ensure safe reactor operation.

SPECIFICATIONS:

A. At least one pressurizer safety valve shall be operable or open when the reactor head is on the vessel, except for hydrostatic tests.

B. The reactor shall not be made critical or maintained critical unless both pressurizer safety valves are operable.

C. During Modes 1 and 2 and in Mode 3 with reactor trip breakers closed, all three reactor coolant loops and their associated steam generators and reactor coolant pumps shall be in operation. With less than the above required coolant loops in operation, be in at least Hot Standby with reactor trip breakers open within 1 hour, except as modified by Specification D below.

D. The limitations of Specification C may be suspended as follows:

1. During Modes 1 and 2, operation may be conducted with 0, 1, 2 or 3 reactor coolant pumps operating at less than 5% of full power for purposes of conducting low power physics testing.

2. During Modes 1 and 2 and in Mode 3 with reactor trip breakers closed, operation may be conducted for less than 24 consecutive hours with one or two reactor coolant pumps operating if reactor power is less than 10% of full power.

E. During Mode 3 with reactor trip breakers open, the following specifications shall apply:

1. At least two of the reactor coolant loops listed below shall be operable:

a. Reactor coolant loop A and its associated steam generator and reactor coolant pump.

b. Reactor coolant loop B and its associated steam generator and reactor coolant pump.

Prior to reducing boron concentration by dilution with make up water either a reactor coolant pump or a residual heat removal pump is specified to be in operation in order to provide effective mixing. During boron injection, the operation of a pump, although desirable, is not essential. The boron is injected into an inlet leg of the reactor coolant loop. Thermal circulation which exists whenever there is residual heat in the core and the reactor coolant system is filled and vented, will cause the boron to flow to the core.

Lack of further mixing cannot result in areas of reduced boron concentration within the core. Prior to criticality the two pressurizer safety relief valves are specified in service in order to conform to the system relief capabilities.(1)

The plant is designed to have all three reactor coolant loops operational during normal power operation (Modes 1 and 2). Under these conditions, the DNB ratio will not drop below 1.30 after a loss of flow with a reactor trip.(2)(3) With one reactor coolant loop not in operation, this specification requires that the plant be in at least Hot Standby with reactor trip breakers open within one hour (for the significance of the trip breaker position, see below). However, exception is taken whenever reactor power is less than 10% of full power. Heat transfer analyses show that reactor heat equivalent to 8% of full power can be removed with natural circulation only; hence, for up to 24 hours the specified upper limit of 10% of full power with 1 or 2 reactor coolant pumps operating provides a substantial safety factor.

In modes other than Modes 1 and 2, functional redundancy in the core heat removal methods (not necessarily system redundancy) is specified to satisfy single failure considerations. Functional redundancy, as applied to the San Onofre Unit 1 power plant, includes use of diverse heat removal methods. Furthermore, single failure considerations apply only to active components.

For operation in Mode 3 under all design basis conditions, it has been determined that one reactor coolant (RC) loop generally provides the required decay heat removal capability, the only exception to this being the control rod bank withdrawal from subcritical accident, when the DNB design basis may not be met. Since power to the gripper and lift coils of the control rod drive mechanism is carried through two reactor trip circuit breakers connected in series with the coils, both breakers must be manually closed before any control rod motion out of the core can take place. In light of this design feature, these Technical Specifications require that all three RC loops be in operation in Mode 3 if the reactor trip breakers are open, the design feature would prevent any control rod motion, even though single failure considerations* require that at least two loops be operable. For the same reasons and subject to the same limitations that are stated in the preceding paragraph, exception is taken whenever reactor power is less than 10% of full power.

*Single failure considerations apply to active components.

In Modes 4 and 5, the Technical Specifications permit functional redundancy in the core heat removal methods (not necessarily system redundancy) to satisfy single failure considerations. Functional redundancy, as applied to the San Onofre Unit 1 power plant, includes use of diverse heat removal methods.

In Mode 4 and Mode 5 (reactor coolant loops filled), a single reactor coolant loop or RHR train provides sufficient capability for removing decay heat; but single failure considerations* require that at least two methods (either RCS loop or RHR train) be OPERABLE.

In Mode 5 (reactor coolant loops not filled), a single RHR train provides sufficient heat removal capability for removing decay heat; but single failure considerations*, and the unavailability of any of the steam generators as a heat removing component, require that at least two RHR trains be OPERABLE.

The operation of one reactor coolant pump or one residual heat removal pump provides adequate flow to ensure mixing, prevent stratification and produce gradual reactivity changes during boron concentration reductions in the Reactor Coolant System. The reactivity change rate associated with boron reduction will, therefore, be within the capability of operator recognition and control (4).

"The limitation on reactor coolant pump operation with the RCS pressure $\leq$ 400 psig ensures that the RCS will be protected from pressure transients which could exceed the limits of Appendix G to 10 CFR Part 50[5]. A pressurizer water level of less than 80% ensures that the start of a reactor coolant pump, with a temperature differential of 100°F will not result in 10 CFR Part 50 Appendix G limits being exceeded.

There are several means available for determining that there is not a temperature differential of > 50°F between the secondary and primary systems with $\leq$ 400 psig primary system pressure. These methods may include but are not necessarily limited to the following:

1) Converting steam line pressure indication into maximum temperature of steam generator fluid.

2) Tagging RCP switches with shutoff temperatures.

3) Assuring adequate time for temperature gradients to dissipate.

4) Filling steam generators with water of known temperature.

References: (1) Final Engineering Report and Safety Analysis, Sections 9 and 10

(2) Final Engineering Report and Safety Analysis, Paragraph 10.2

(3) Supplement No. 1 to Final Engineering Report and Safety Analysis, Section 3, Question 9

(4) NRC letter dated June 11, 1980 from D. G. Eisenhut to all operating pressurized water reactors.

(5) Letter to A. Schwencer from K. Baskin dated October 12, 1977.

*Single failure considerations apply to active components.

		Check	Frequency
15.	Reactor Coolant Loops/Residual Heat Removal Loops	a. Per Technical Specifications 3.1.2.C and 3.1.2.D, in Modes 1 and Mode 2 and in Mode 3 with reactor trip breakers closed verify that all required reactor coolant loops are in operation and circulating reactor coolant.	a. Once per 12 hours
		b. Per Technical Specification 3.1.2.E, in Mode 3 with reactor trip breakers open verify	
		1. At least two required reactor coolant pumps are operable with correct breaker alignments and indicated power availability.	1. Once per 7 days
		2. The steam generators associated with the two required reactor coolant pumps are operable with secondary side water level $\geq$ 256 inches of narrow range on cold calibrated scale.	2. Once per 12 hours
		3. At least one reactor coolant loop is in operation and circulating reactor coolant.	3. Once per 12 hours
		c. Per Technical Specification 3.1.2.F, in Mode 4 verify	
		1. At least two required (RC or RHR) pumps are operable with correct breaker alignments and indicated power availability.	1. Once per 7 days
		2. The required steam generators are operable with secondary side water level $\geq$ 256 inches of narrow range on cold calibrated scale.	2. Once per 12 hours
		3. At least one reactor coolant loop/RHR train is in operation and circulating reactor coolant.	3. One per 12 hours
		d. Per Technical Specifications 3.1.2.G and 3.1.2.H, in Mode 5 verify, as applicable:	