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

October 1, 1991

Docket Nos. 50-361
and 50-362

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. M80613) AND UNIT NO. 3 (TAC NO. M80614)

The Commission has issued the enclosed Amendment No. 99 to Facility Operating License No. NPF-10 and Amendment No. 88 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 17, 1991, designated by you as PCN-339.

These amendments revise Technical Specification (TS) 3/4.7.1.2 and associated Bases to identify that the Auxiliary Feedwater System (AFW) performs a dual function in an event which requires steam generator isolation and secondary heat removal. A new section is being added to address the operation of the AFW system when the steam generators are being used for decay heat removal. Additionally, a clarification to Surveillance Requirements 4.7.1.2.1.b.1 and 4.7.1.2.1.b.2 is provided to more accurately depict the functional testing performed every refueling outage to confirm that the AFW pumps will start upon receipt of an EFAS.

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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. 99 to NPF-10
2. Amendment No. 88 to NPF-15
3. Safety Evaluation

cc w/enclosures:
See next page

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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,

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

Enclosures:
1. Amendment No. 99 to NPF-10
2. Amendment No. 88 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

cc:
James A. Beoletto, Esq.
Southern California Edison Company
Irvine Operations Center
23 Parker Street
Irvine, California 92718

Chairman, Board of Supervisors
County of San Diego
1600 Pacific Highway, Room 335
San Diego, California 92101

Alan R. Watts, Esq.
Rourke & Woodruff
701 S. Parker St. No. 7000
Orange, California 92668-4702

Mr. Sherwin Harris
Resource Project Manager
Public Utilities Department
City of Riverside
3900 Main Street
Riverside, California 92522

Mr. Charles B. Brinkman, Manager
Washington Nuclear Operations
ABB Combustion Engineering Nuclear Power
12300 Twinbrook Parkway, Suite 330
Rockville, Maryland 20852

Mr. Phil Johnson
U.S. Nuclear Regulatory Commission
Region V
1450 Maria Lane, Suite 210
Walnut Creek, California 94596

Mr. Don J. Womeldorf
Chief, Environmental Management Branch
California Department of Health Services
714 P Street, Room 616
Sacramento, California 95814

Mr. Richard J. Kosiba, Project Manager
Bechtel Power Corporation
12440 E. Imperial Highway
Norwalk, California 90650

Mr. Robert G. Lacy
Manager, Nuclear Department
San Diego Gas & Electric Company
P. O. Box 1831
San Diego, California 92112

Mr. John Hickman
Senior Health Physicist
Environmental Radioactive Mgmt. Unit
Environmental Management Branch
State Department of Health Services
714 P Street, Room 616
Sacramento, California 95814

Resident Inspector, San Onofre NPS
c/o U.S. Nuclear Regulatory Commission
Post Office Box 4329
San Clemente, California 92674

Mayor
City of San Clemente
100 Avenida Presidio
San Clemente, California 92672

Regional Administrator, Region V
U.S. Nuclear Regulatory Commission
1450 Maria Lane, Suite 210
Walnut Creek, California 94596

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. 99
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 June 17, 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. 99 , 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

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: October 1, 1991

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 99 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 the captioned amendment number and contain marginal lines indicating the areas of change. The corresponding overleaf pages are also provided to maintain document completeness.

REMOVE	INSERT
3/4 7-4	3/4 7-4
3/4 7-5	3/4 7-5
-------	3/4 7-5a
-------	3/4 7-5b
B 3/4 7-2	B 3/4 7-2
-------	B 3/4 7-2a

LIMITING CONDITION FOR OPERATION

3.7.1.2.1 At least three independent steam generator auxiliary feedwater pumps and associated flow paths shall be OPERABLE with:

a. Two motor-driven auxiliary feedwater pumps, each capable of being powered from separate emergency busses,

b. One steam turbine-driven auxiliary feedwater pump capable of being powered from an OPERABLE steam supply system, and

c. Manual valves in the correct position and automatic valves each capable of being opened and closed, with the following exceptions:

   1. Motor-driven auxiliary feedwater pump discharge bypass control valves, HV-4762 and HV-4763, need only be capable of being closed,

   2. Steam turbine-driven auxiliary feedwater pump steam supply isolation valves, HV-8200 and HV-8201, and turbine stop valve, HV-4716, need only be capable of being opened, and

   3. Manual crosstie valves 1305MU634 and 130MU635 may be open in Mode 3 provided a minimum of 2 hours has elapsed since reactor shutdown.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

a. With one auxiliary feedwater pump or its associated flow path inoperable, restore the required auxiliary feedwater pump and its associated flow path to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With either two auxiliary feedwater pumps, two flow paths, or one pump and one separate flow path inoperable, be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.

c. With three auxiliary feedwater pumps or flow paths inoperable, immediately initiate corrective action to restore at least one auxiliary feedwater pump and its associated flow path to OPERABLE status as soon as possible.

d. With an automatic valve in any flow path incapable of closing upon receipt of a Main Steam Isolation Signal, close the affected valve or its block valve within 4 hours and enter actions a, b, or c if there is a loss of the flow paths(s). Testing pursuant to Technical Specification 3.3.2 does not constitute entry into this ACTION Statement.

SURVEILLANCE REQUIREMENTS

4.7.1.2.1.1 Each auxiliary feedwater pump and associated flow path shall be demonstrated OPERABLE:

a. At least once per 31 days by:

1. Testing the turbine driven pump and both motor driven pumps pursuant to Specification 4.0.5. The provisions of Specification 4.0.4 are not applicable for the turbine driven pump for entry into MODE 3.

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 its correct position.

3. Verifying that both manual valves in the suction lines from the primary AFW supply tank (condensate storage tank T-121) to each AFW pump, and the manual discharge line valve of each AFW pump are locked in the open position.

4. Verifying that the AFW piping is full of water by venting the accessible discharge piping high points.

b. At least once per refueling interval during shutdown by:

1. Verifying that each automatic valve in the flow path actuates to its correct position upon receipt of an EFAS test signal.

2. Verifying that each motor driven pump starts and the steam inlet valves to the turbine driven pump open automatically upon receipt of an EFAS test signal.

3. Verifying that each automatic valve in the flow path actuates to its correct position upon receipt of a MSIS test signal except for HV-8200 and HV-8201.

4.7.1.2.1.2 The auxiliary feedwater system shall be demonstrated OPERABLE prior to entering MODE 2 following each COLD SHUTDOWN by performing a flow test to verify the normal flow path from the primary AFW supply tank (condensate storage tank T-121) through each auxiliary feedwater pump to its associated steam generator.

AUXILIARY FEEDWATER SYSTEM-HOT SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.7.1.2.2 At least one motor-driven auxiliary feedwater pump and associated flow path per steam generator required by LCO 3.4.1.3 (Reactor Coolant System - Hot Shutdown) shall be OPERABLE with:

a. a motor driven auxiliary feedwater pump, and

b. Manual valves in the correct position and automatic valves each capable of being opened and closed, with the following exceptions:

   1. Motor-driven auxiliary feedwater pump discharge bypass control valves, HV-4762 and HV-4763, need only be capable of being closed; and

   2. Manual crosstie valves 1305MU634 and 1305MU635 may be open.

APPLICABILITY: MODE 4 with a steam generator being used for decay heat removal.

ACTION: With no auxiliary feedwater pump or its associated flow path OPERABLE as required to satisfy LCO 3.4.1.3, restore the required auxiliary feedwater pump(s) and flow path(s) to OPERABLE status within 24 hours or be in COLD SHUTDOWN within the next 12 hours.

SURVEILLANCE REQUIREMENTS

4.7.1.2.2.1 Each auxiliary feedwater pump and flow path shall be demonstrated OPERABLE:

a. At least once per 31 days by:

1. Testing the required motor driven pump(s) pursuant to Specification 4.0.5

2. Verifying that each valve (manual, power operated or automatic) in the required flow path(s) that is not locked, sealed, or otherwise secured in position, is in its correct position.

3. Verifying that both manual valves in the suction lines from the primary AFW supply tank (condensate storage tank T-121) to each required AFW pump, and the manual discharge line valve of each required AFW pump are locked in the open position.

4. Verifying that the AFW piping is full of water by venting the accessible discharge piping high points on the required flow paths.

3/4.7.1 TURBINE CYCLE

3/4.7.1.1 SAFETY VALVES

The OPERABILITY of the main steam safety valves (MSSVs) ensures that the secondary system pressure will not exceed 110% (1210 psia) of its design pressure of 1100 psia during the most severe anticipated system operational transient. The total relief capacity available is greater than the maximum steam flow required after a turbine trip from 102% RATED THERMAL POWER coincident with an assumed loss of condenser heat sink.

The MSSV lift setpoints are staggered, as shown in Table 3.7-1, such that only those valves needed for pressure relief will actuate. The MSSV lift settings and relieving capacities meet the requirements of Section III of the ASME Boiler and Pressure Vessel Code, 1974 Edition, as described in the Overpressure Protection Report (UFSAR Appendix 5.2A). The total available relieving capacity for all valves on all of the steam lines is 15,473,628 lbs/hr at 1190 psia. A minimum of one OPERABLE safety valve per steam generator ensures that sufficient relieving capacity is available for removing decay heat.

STARTUP and/or POWER OPERATION is allowable with safety valves inoperable within the limitations of the ACTION requirements on the basis of the reduction in secondary system steam flow and THERMAL POWER required by the reduced reactor trip settings of the Power Level-High channels. The reduced reactor trip allowable values are derived on the following bases:

$$SP = \frac{(X) - (Y)(V)}{X} \times 111.0$$

where:

SP = reduced reactor trip allowable value in percent of RATED THERMAL POWER.

V = maximum number of inoperable safety valves per steam line.

111.0 = Power Level-High Trip allowable value from Table 2.2-1.

X = Total relieving capacity of all safety valves per steam line in lbs/hour (7,736,814 lbs/hr at 1190 psia).

Y = Maximum relieving capacity of any one safety valve in lbs/hour (859,646 lbs/hr at 1190 psia).

3/4.7.1.2 AUXILIARY FEEDWATER SYSTEM

The OPERABILITY of the auxiliary feedwater system ensures that the Reactor Coolant System can be cooled down to less than 350°F from normal operating conditions in the event of a total loss of off-site power. In addition, the flow paths are automatically aligned to support an Emergency Feedwater Actuation Signal or a Main Steam Isolation Signal.

Each electric driven auxiliary feedwater pump is capable of delivering a total feedwater flow of 700 gpm at a pressure of 1170 psig to the entrance of the steam generators. The steam driven auxiliary feedwater pump is capable of delivering a total feedwater flow of 700 gpm at a pressure of 1170 psig to the entrance of the steam generators. This capacity is sufficient to ensure that adequate feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 350°F when the shutdown cooling system may be placed into operation.

Each electric driven auxiliary feedwater pump is powered from an independent 1E power supply, and feeds one steam generator through a set of valves powered from the same 1E source. The AC-powered valves associated with the same train electric driven auxiliary feedwater pump defines that flow path. The steam-driven auxiliary feedwater pump can feed each steam generator through two sets of valves powered from 125VDC 1E power sources. Each set of valves aligned to a steam generator from the steam driven auxiliary feedwater pump, are powered from the opposite train from the valves from the corresponding electric driven auxiliary feedwater pump. For purposes of identifying the appropriate action statement, the steam-driven auxiliary feedwater pump flow path is defined as both sets of valves aligned to steam generators. Loss of Operability of one or more of the DC powered valves constitutes loss of the steam-driven auxiliary feedwater flow path.

If the steam generators are used for decay heat removal in Mode 4 under the provisions of Technical Specifications 3/4.4.1.3, at least one motor-driven auxiliary feedwater pump and associated flow path per steam generator is required to be OPERABLE to provide decay heat removal.

3/4.7.1.3 CONDENSATE STORAGE TANKS

The OPERABILITY of the condensate storage tank T-121 with the mimimum water volume ensures that sufficient water is available to maintain the RCS at HOT STANDBY conditions for 2 hours followed by cooldown to shutdown cooling initiation, with steam discharge to atmosphere with concurrent loss of offsite power and most limiting single failure. The OPERABILITY of condensate storage tank T-120 in conjunction with tank T-121 ensures that sufficient water is available to maintain the RCS at HOT STANDBY conditions for 24 hours including cooldown to shutdown cooling initiation, with steam discharge to atmosphere with concurrent loss of offsite power and most limiting single failure. The contained water volume limits are specificd relative to the highest auxiliary feedwater

3/4.7.1.3 CONDENSATE STORAGE TANKS (Continued)

pump suction inlet in the tank for T-121, and to the T-121 cross connect siphon inlet for T-120. (Water volume below these datum levels is not considered recoverable for purposes of this specification.) Vortexing, internal structure, and instrument error are considered in determining the tank levels corresponding to the specified water volume limits.

Prior to achieving 100% RATED THERMAL POWER, Figure 3.7-1 is used to determine the minimum required water volume for T-121 for the maximum power level (hence maximum decay heat) achieved.

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. 88
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 June 17, 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. 88 , 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

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: October 1, 1991

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 88 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 the captioned amendment number and contain marginal lines indicating the areas of change. The corresponding overleaf pages are also provided to maintain document completeness.

REMOVE	INSERT
3/4 7-4	3/4 7-4
3/4 7-5	3/4 7-5
-------	3/4 7-5a
-------	3/4 7-5b
B 3/4 7-2	B 3/4 7-2
-------	B 3/4 7-2a

TABLE 3.7-2

MAXIMUM ALLOWABLE VALUE LINEAR POWER LEVEL-HIGH TRIP WITH INOPERABLE MAIN STEAM SAFETY VALVES DURING OPERATION WITH BOTH STEAM GENERATORS

Maximum Number of Inoperable Safety Valves on Any Operating Steam Generator	Maximum Allowable Value Linear Power Level-High Trip (Percent of RATED THERMAL POWER)
1	98.6
2	86.3
3	74.0
4	61.6

LIMITING CONDITION FOR OPERATION

3.7.1.2.1 At least three independent steam generator auxiliary feedwater pumps and associated flow paths shall be OPERABLE with:

a. Two motor-driven auxiliary feedwater pumps, each capable of being powered from separate emergency busses,

b. One steam turbine-driven auxiliary feedwater pump capable of being powered from an OPERABLE steam supply system, and

c. Manual valves in the correct position and automatic valves each capable of being opened and closed, with the following exceptions:

   1. Motor-driven auxiliary feedwater pump discharge bypass control valves, HV-4762 and HV-4763, need only be capable of being closed,

   2. Steam turbine-driven auxiliary feedwater pump steam supply isolation valves, HV-8200 and HV-8201, and turbine stop valve, HV-4716, need only be capable of being opened, and

   3. Manual crosstie valves 1305MU634 and 130MU635 may be open in Mode 3 provided a minimum of 2 hours has elapsed since reactor shutdown.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

a. With one auxiliary feedwater pump or its associated flow path inoperable, restore the required auxiliary feedwater pump and its associated flow path to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With either two auxiliary feedwater pumps, two flow paths, or one pump and one separate flow path inoperable, be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.

c. With three auxiliary feedwater pumps or flow paths inoperable, immediately initiate corrective action to restore at least one auxiliary feedwater pump and its associated flow path to OPERABLE status as soon as possible.

d. With an automatic valve in any flow path incapable of closing upon receipt of a Main Steam Isolation Signal, close the affected valve or its block valve within 4 hours and enter actions a, b, or c if there is a loss of the flow paths(s). Testing pursuant to Technical Specification 3.3.2 does not constitute entry into this ACTION Statement.

SURVEILLANCE REQUIREMENTS

4.7.1.2.1.1 Each auxiliary feedwater pump and associated flow path shall be demonstrated OPERABLE:

a. At least once per 31 days by:

1. Testing the turbine driven pump and both motor driven pumps pursuant to Specification 4.0.5. The provisions of Specification 4.0.4 are not applicable for the turbine-driven pump for entry into MODE 3.

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 its correct position.

3. Verifying that both manual valves in the suction lines from the primary AFW supply tank (condensate storage tank T-121) to each AFW pump, and the manual discharge line valve of each AFW pump are locked in the open position.

4. Verifying that the AFW piping is full of water by venting the accessible discharge piping high points.

b. At least once per refueling interval during shutdown by:

1. Verifying that each automatic valve in the flow path actuates to its correct position upon receipt of an EFAS test signal.

2. Verifying that each motor driven pump starts and the steam inlet valves to the turbine drive pump open automatically upon receipt of an EFAS test signal.

3. Verifying that each automatic valve in the flow path actuates to its correct position upon receipt of a MSIS test signal except for HV-8200 and HV-8201.

4.7.1.2.1.2 The auxiliary feedwater system shall be demonstrated OPERABLE prior to entering MODE 2 following each COLD SHUTDOWN by performing a flow test to verify the normal flow path from the primary AFW supply tank (condensate storage tank T-121) through each auxiliary feedwater pump to its associated steam generator.

AUXILIARY FEEDWATER SYSTEM-HOT SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.7.1.2.2 At least one motor-driven auxiliary feedwater pump and associated flow path per steam generator required by LCO 3.4.1.3 (Reactor Coolant System - Hot Shutdown) shall be OPERABLE with:

a. a motor driven auxiliary feedwater pump, and

b. Manual valves in the correct position and automatic valves each capable of being opened and closed, with the following exceptions:

   1. Motor-driven auxiliary feedwater pump discharge bypass control valves, HV-4762 and HV-4763, need only be capable of being closed; and

   2. Manual crosstie valves 1305MU634 and 1305MU635 may be open.

APPLICABILITY: MODE 4 with a steam generator being used for decay heat removal.

ACTION: With no auxiliary feedwater pump or its associated flow path OPERABLE as required to satisfy LCO 3.4.1.3, restore the required auxiliary feedwater pump(s) and flow path(s) to OPERABLE status within 24 hours or be in COLD SHUTDOWN within the next 12 hours.

SURVEILLANCE REQUIREMENTS

4.7.1.2.2.1 Each auxiliary feedwater pump and flow path shall be demonstrated OPERABLE:

a. At least once per 31 days by:

1. Testing the required motor driven pump(s) pursuant to Specification 4.0.5

2. Verifying that each valve (manual, power operated or automatic) in the required flow path(s) that is not locked, sealed, or otherwise secured in position, is in its correct position.

3. Verifying that both manual valves in the suction lines from the primary AFW supply tank (condensate storage tank T-121) to each required AFW pump, and the manual discharge line valve of each required AFW pump are locked in the open position.

4. Verifying that the AFW piping is full of water by venting the accessible discharge piping high points on the required flow paths.

CONDENSATE STORAGE TANKS

LIMITING CONDITION FOR OPERATION

3.7.1.3 The condensate storage tanks (CSTs) shall be OPERABLE with a contained volume of at least 144,000 gallons* in T-121 and 280,000 gallons in T-120.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

With the condensate storage tanks inoperable, within 4 hours either restore the CSTs to OPERABLE status or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.7.1.3 The condensate storage tanks shall be demonstrated OPERABLE at least once per 12 hours by verifying the contained water volume is within its limits.

*Prior to first achieving 100% power, the minimum volume required to be contained in T-121 is that shown on Figure 3.7-1 corresponding to the maximum power level achieved to date.

3/4.7.1 TURBINE CYCLE

3/4.7.1.1 SAFETY VALVES

The OPERABILITY of the main steam safety valves (MSSVs) ensures that the secondary system pressure will not exceed 110% (1210 psia) of its design pressure of 1100 psia during the most severe anticipated system operational transient. The total relief capacity available is greater than the maximum steam flow required after a turbine trip from 102% RATED THERMAL POWER coincident with an assumed loss of condenser heat sink.

The MSSV lift setpoints are staggered, as shown in Table 3.7-1, such that only those valves needed for pressure relief will actuate. The MSSV lift settings and relieving capacities meet the requirements of Section III of the ASME Boiler and Pressure Vessel Code, 1974 Edition, as described in the Overpressure Protection Report (UFSAR Appendix 5.2A). The total available relieving capacity for all valves on all of the steam lines is 15,473,628 lbs/hr at 1190 psia. A minimum of one OPERABLE safety valve per steam generator ensures that sufficient relieving capacity is available for removing decay heat.

STARTUP and/or POWER OPERATION is allowable with safety valves inoperable within the limitations of the ACTION requirements on the basis of the reduction in secondary system steam flow and THERMAL POWER required by the reduced reactor trip settings of the Power Level-High channels. The reduced reactor trip allowable values are derived on the following bases:

$$SP = \frac{(X) - (Y)(V)}{X} \times 111.0$$

where:

SP = reduced reactor trip allowable value in percent of RATED THERMAL POWER.

V = maximum number of inoperable safety valves per steam line.

111.0 = Power Level-High Trip allowable value from Table 2.2-1.

X = Total relieving capacity of all safety valves per steam line in lbs/hour (7,736,814 lbs/hr at 1190 psia).

Y = Maximum relieving capacity of any one safety valve in lbs/hour (859,646 lbs/hr at 1190 psia).

3/4.7.1.2 AUXILIARY FEEDWATER SYSTEM

The OPERABILITY of the auxiliary feedwater system ensures that the Reactor Coolant System can be cooled down to less than 350°F from normal operating conditions in the event of a total loss of offsite power. In addition, the flow paths are automatically aligned to support an Emergency Feedwater Actuation Signal or Main Steam Isolation Signal.

Each electric-driven auxiliary feedwater pump is capable of delivering a total feedwater flow of 700 gpm at a pressure of 1170 psig to the entrance of the steam generators. The steam-driven auxiliary feedwater pump is capable of delivering a total feedwater flow of 700 gpm at a pressure of 1170 psig to the entrance of the steam generators. This capacity is sufficient to ensure that adequate feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 350°F when the shutdown cooling system may be placed into operation.

Each electric driven auxiliary feedwater pump is powered from an independent 1E power supply, and feeds one steam generator through a set of valves powered from the same 1E source. The AC-powered valves associated with the same train electric driven auxiliary feedwater pump defines that flow path. The steam-driven auxiliary feedwater pump can feed each steam generator through two sets of valves powered from 125VDC 1E power sources. Each set of valves aligned to a steam generator from the steam driven auxiliary feedwater pump, are powered from the opposite train from the valves from the corresponding electric driven auxiliary feedwater pump. For purposes of identifying the appropriate action statement, the steam-driven auxiliary feedwater pump flow path is defined as both sets of valves aligned to steam generators. Loss of Operability of one or more of the DC powered valves constitutes loss of the steam-driven auxiliary feedwater flow path.

If the steam generators are used for decay heat removal in Mode 4 under the provisions of Technical Specifications 3/4.4.1.3, at least one motor-driven auxiliary feedwater pump and associated flow path per steam generator is required to be OPERABLE to provide decay heat removal.

3/4.7.1.3 CONDENSATE STORAGE TANKS

The OPERABILITY of the condensate storage tank T-121 with the minimum water volume ensures that sufficient water is available to maintain the RCS at HOT STANDBY conditions for 2 hours followed by cooldown to shutdown cooling initiation, with steam discharge to atmosphere with concurrent loss of offsite power and most limiting single failure. The OPERABILITY of condensate storage tank T-120 in conjunction with tank T-121 ensures that sufficient water is available to maintain the RCS at HOT STANDBY conditions for 24 hours including cooldown to shutdown cooling initiation, with steam discharge to atmosphere with concurrent loss of offsite power and most limiting single failure. The contained water volume limits are specified relative to the highest auxiliary feedwater pump suction inlet in the tank for T-121, and to the T-121 cross connect siphon inlet for T-120. (Water volume below these datum levels is

3/4.7.1.3 CONDENSATE STORAGE TANKS (Continued)

not considered recoverable for purposes of this specification.) Vortexing, internal structure and instrument error are considered in determining the tank levels corresponding to the specified water volume limits.

Prior to achieving 100% RATED THERMAL POWER, Figure 3.7-1 is used to determine the minimum required water volume for T-121 for the maximum power level (hence maximum decay heat) achieved.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 99 TO FACILITY OPERATING LICENSE NO. NPF-10

AND AMENDMENT NO. 88 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 17, 1991, Southern California Edison Company (SCE or the licensee) submitted a request for changes to the Technical Specifications (TS) for San Onofre Nuclear Generating Station, Units 2 and 3. The licensee for SONGS Units 2 and 3 proposed changes to plant Technical Specification (TS) 3/4.7.1.2, "Auxiliary Feedwater System." Specifically, the licensee proposed to identify that the AFW system performs a dual function in an event which requires SG isolation and secondary heat removal. Currently, TS 3/4.7.1.2 addresses the operability requirements of the Emergency Feedwater Actuation System (EFAS), but not the Main Steam Isolation Signal (MSIS). Also, a new section is being proposed to address the operation of the AFW system in Mode 4 when the SGs are being used for decay heat removal, as well as a clarification to Surveillance Requirements 4.7.1.2.1.b.1 and 4.7.1.2.1.b.2

2.0 EVALUATION

The licensee proposes to revise the TS to address the dual function of the AFW system in an event which requires SG isolation and secondary heat removal. The EFAS and the MSIS are Engineered Safety Feature Actuation Systems (ESFAS) designed to assist the AFW system in performing its dual function. EFAS is designed to automatically initiate AFW system flow to the SG when the level is low resulting from a loss of main feedwater. The MSIS is designed to isolate steam and feedwater lines to mitigate the consequences of a Main Steam Line Break (MSLB) or Main Feedwater Line Break (MFLB) accidents by isolating the affected SG. An EFAS signal is generated by a two-out-of-four logic system which requires one of the following combinations before an EFAS signal is generated:

1. Low SG level coincident with no low pressure for that SG; or

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2. Low SG level coincident with a pre-set differential pressure between the two SGs with higher pressure associated with the SG to be fed.

AFW flow to the SG is controlled by two trains of valves on discharge piping for three AFW pumps. These AFW valves have three safety functions associated with this design:

1. They close on an MSIS,
2. They open on an EFAS signal, and
3. They cycle open/closed to control the level of the intact SG after EFAS is initiated.

However, valves that receive an EFAS signal are unable to close upon receipt of an MSIS because an EFAS signal overrides an MSIS. Therefore, during certain planned maintenance or upon EFAS subsystem actuation, the valves are not available to close on an MSIS. This has resulted in several entries into TS 3.0.3 during testing because the current TS is not provided with operability and action statements related to operability of the MSIS.

To avoid entry into TS 3.0.3 during ESFAS functional testing, the licensee has proposed limiting conditions of operation (LCO) to TS 3/4.7.1.2 for AFW valves. The LCO requires that all manual AFW valves be in the correct position and automatic valves each be capable of being opened and closed except for the following:

1. Bypass control valves HV-4762 and HV-4763 need only be capable of being closed.
2. Steam turbine driven AFW pump steam supply isolation valves HV-8200 and HV-8201 and turbine stop valve HV-4716 need only be capable of being opened.
3. Manual crosstie valves 1305MU634 and 1305MU635 may be open in Mode 3 provided a minimum 2 hours has elapsed since reactor shutdown.

In its rationale for the LCO requirements for the AFW valves, the licensee stated that, bypass control valves HV-4762 and HV-4763 only safety-related function is to close on an MSIS and therefore need only be capable of being closed. The licensee also stated that, although steam supply valves HV-8200 and HV-8201 close on an MSIS, this function is not relied upon in the accident analysis because they fail open upon a loss of nonsafety-grade compressed air. Therefore, the down-stream check valves are credited for isolating the intact steam supply from the failed steam supply under MSLB or MSLB conditions. It should be noted that the licensee requires both steam supply valves HV-8200 and HV-8201 to be operable for the steam supply line to be operable. The licensee stated that San Onofre Units 2 and 3 have one steam supply fed from two steam generators, thus both steam supply valves must be operable. Also incorporated in the proposed TS change is an action statement which states, if an automatic valve, in any flow path, is incapable of closing upon receipt of an MSIS the affected valve or its block valve must be closed within 4 hours; and if there is a loss of flow path(s), the affected unit must enter one of the current action statements in TS 3/4.7.1.2. This action statement clearly states that testing pursuant to TS 3.3.2 does not constitute entry into this action statement.

The proposed TS change also modifies Surveillance Requirements 4.7.1.2.1.b.1 and 4.7.1.2.1.b.2 as well as adding a new Surveillance Requirement 4.7.1.2.1.b.(3). Changes to 4.7.1.2.1.b.1 and 4.7.1.2.1.b.2 are strictly editorial to clarify the surveillance program. Surveillance Requirement 4.7.1.2.1.b.2 has been edited to clarify that only the motor driven AFW pumps start automatically upon receipt of an EFAS test signal. The steam driven pump is not started at this time because the EFAS actuation test is performed during cold shutdown and no steam is available to drive the pump. Surveillance Requirement 4.7.1.2.1.b.1 is edited to clarify that the flow path's operability as well as the pump's operability must be verified monthly. The new surveillance requirement 4.7.1.2.1.b.(3) will be added to demonstrate operability by verifying that each automatic valve in the flow path must be in its isolation position on an MSIS with the exception of HV-8200 and HV-8201.

The original TS is silent to the issues addressed by the proposed TS changes. LCO and surveillance requirements for the flow paths and AFW valves were not included in the original TS. The proposed changes are intended to ensure that the flow path and AFW valves are operable as well as the AFW pumps, and address the dual function of the AFW system (EFAS and MSIS).

Additionally, the licensee has proposed to add a new TS section which addresses the operation of the AFW system in Mode 4 when the SGs are being used for decay heat removal. The existing AFW TS section is renumbered to be 3/4.7.1.2.1 and the new section is 3/4.7.1.2.2. The licensee states that the addition of the new section documents the current practice of maintaining the operability of the AFW system components required to support SG heat removal capability in Mode 4. This is implicitly in accordance with TS 3.4.1.3 and thus found acceptable.

Based on its review of the proposed TS changes to TS 3/4.7.1.2, "Auxiliary Feedwater" and the new TS Section 3/4.7.1.2.2 for removal of decay heat in Mode 4, the staff concludes that the proposed changes meet the requirements of 10 CFR Part 50, Appendix A, General Design Criteria (GDC) 34 and 44 and meet the acceptance criteria of Standard Review Plan Section 10.4.9. Therefore, the proposed changes, as outlined in the June 17, 1991, submittal, are acceptable.

3.0 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 changes 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 (56 FR 31443). 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.

4.0 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 Contributors: S. Flanders
L. Kokajko

Date: October 1, 1991