



LICENSE AUTHORITY FILE COPY

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

NOV 22 1985

DO NOT REMOVE

Posted
Amdt. 38
to NPF-10

Docket Nos.: 50-361
and 50-362

Mr. Kenneth P. Baskin
Vice President
Southern California Edison Company
2244 Walnut Grove Avenue
Post Office Box 800
Rosemead, California 91770

Mr. James C. Holcombe
Vice President - Power Supply
San Diego Gas & Electric Company
101 Ash Street
Post Office Box 1831
San Diego, California 92112

Gentlemen:

Subject: Issuance of Amendment No. 38 to Facility Operating License NPF-10
and Amendment No. 27 to Facility Operating License NPF-15
San Onofre Nuclear Generating Station, Units 2 and 3

The Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 38 to Facility Operating License No. NPF-10 and Amendment No. 27 to Facility Operating License No. NPF-15 for the San Onofre Nuclear Generating Station, Units 2 and 3, located in San Diego County, California. The amendments modify Technical Specifications 3/4.8.1.1, "Electrical Power Systems - A.C. Sources - Operating" and 3/4.8.1.2 "Electrical Power Systems - A. C. Sources - Shutdown."

These amendments were requested by your letters of January 25, May 23 and August 7, 1984 and August 20, 1985, and are covered by Proposed Changes Numbers PCN-91 and PCN-137.

A copy of the Safety Evaluation supporting the amendments is also enclosed.

Sincerely,

George W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing

Enclosures:

1. Amendment No. 38 to NPF-10
2. Amendment No. 27 to NPF-15
3. Safety Evaluation

cc: See next page

Mr. Kenneth P. Baskin
Southern California Edison Company

San Onofre Nuclear Generating Station
Units 2 and 3

cc:

Mr. James C. Holcombe
Vice President - Power Supply
San Diego Gas & Electric Company
101 Ash Street
Post Office Box 1831
San Diego, California 92112

Mr. Hans Kaspar, Executive Director
Marine Review Committee, Inc.
531 Encinitas Boulevard, Suite 105
Encinitas, California 92024

Charles R. Kocher, Esq.
James A. Beoletto, Esq.
Southern California Edison Company
2244 Walnut Grove Avenue
P. O. Box 800
Rosemead, California 91770

Mr. Mark Medford
Southern California Edison Company
2244 Walnut Grove Avenue
P. O. Box 800
Rosemead, California 91770

Orrick, Herrington & Sutcliffe
ATTN: David R. Pigott, Esq.
600 Montgomery Street
San Francisco, California 94111

Dr. L. Bernath
Manager, Nuclear Department
San Diego Gas & Electric Company
P. O. Box 1831
San Diego, California 92112

Alan R. Watts, Esq.
Rourke & Woodruff
Suite 1020
1055 North Main Street
Santa Ana, California, 92701

Richard J. Wharton, Esq.
University of San Diego School of
Law
Environmental Law Clinic
San Diego, California 92110

Mr. V. C. Hall
Combustion Engineering, Inc.
1000 Prospect Hill Road
Windsor, Connecticut 06095

Charles E. McClung, Jr., Esq.
Attorney at Law
24012 Calle de la Plaza/Suite 330
Laguna Hills, California 92653

Mr. S. McClusky
Bechtel Power Corporation
P. O. Box 60860, Terminal Annex
Los Angeles, California 90060

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

Mr. C. B. Brinkman
Combustion Engineering, Inc.
7910 Woodmont Avenue
Bethesda, Maryland 20814

Resident Inspector, San Onofre NPS
c/o U. S. Nuclear Regulatory Commission
Post Office Box 4329
San Clemente, California 92672

Mr. Dennis F. Kirsh
U.S. Nuclear Regulatory Commission - Region V
1450 Maria Lane, Suite 210
Walnut Creek, California 94596

Southern California Edison Company - 2 - San Onofre 2/3

cc:

California State Library
Government Publications Section
Library & Courts Building
Sacramento, CA 95841
ATTN: Ms. Mary Schnell

Mayor, City of San Clemente
San Clemente, CA 92672

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

California Department of Health
ATTN: Chief, Environmental
Radiation Control Unit
Radiological Health Section
714 P Street, Room 498
Sacramento, CA 95814

Mr. Joseph O. Ward, Chief
Radiological Health Branch
State Department of Health Services
714 P Street, Building #8
Sacramento, California 95814



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 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 38
License No. NPF-10

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The applications for amendment to the license for San Onofre Nuclear Generating Station, Unit 2 (the facility) filed by the Southern California Edison Company on behalf of itself and San Diego Gas and Electric Company, The City of Riverside and the City of Anaheim, California (licensees) dated January 25, May 23, and August 7, 1984 and August 20, 1985, comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations as set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, as amended, 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 set forth in 10 CFR Chapter I;
 - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public;
 - 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 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. 38, are hereby incorporated in the license. SCE shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This amendment is effective immediately and is to be fully implemented within 30 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION


George W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: NOV 22 1985

ATTACHMENT TO LICENSE AMENDMENT NO. 38FACILITY OPERATING LICENSE NO. NPF-10DOCKET NO. 50-361

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. Also to be replaced are the following overleaf pages to the amended pages.

Amendment Pages

3/4 8-4
3/4 8-8
3/4 8-8a
B 3/4 8-2
B 3/4 8-3

Overleaf Pages

3/4 8-3
3/4 8-7
-
B 3/4 8-1
-

ELECTRICAL POWER SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

- b. Demonstrated OPERABLE at least once per 18 months during shutdown by transferring (manually and automatically) unit power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:

- a. In accordance with the frequency specified in Table 4.8-1 on a STAGGERED TEST BASIS by:
 - 1. Verifying the fuel level in the day fuel tank,
 - 2. Verifying the fuel level in the fuel storage tank,
 - 3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the day tank,
 - 4. Verifying the diesel starts from ambient condition and accelerates to at least 900 rpm in less than or equal to 10 seconds. The generator voltage and frequency shall be 4360 ± 436 volts and 60 ± 1.2 Hz within 10 seconds after the start signal. The diesel generator shall be started for this test by using the manual start signal.
 - 5. Verifying the generator is synchronized, loaded to greater than or equal to 4700 kw in less than or equal to 77 seconds, and operates with a load greater than or equal to 4700 kw for at least an additional 60 minutes, and
 - 6. Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.
- b. At least once per 31 days and after each operation of the diesel where the period of operation was greater than or equal to 1 hour by checking for and removing accumulated water from the day tank.
- c. At least once per 92 days and from new fuel oil prior to addition to the storage tanks by verifying that a sample obtained in accordance with ASTM-D270-1975 has a water and sediment content of less than or equal to .05 volume percent and a kinematic viscosity @40°C of greater than or equal to 1.9 but less than or equal to 4.1 when tested in accordance with ASTM-D975-77, and an impurity level of less than 2 mg of insolubles per 100 ml. when tested in accordance with ASTM-D2274-70.
- d. At least once per 18 months during shutdown by:
 - 1. Subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service.
 - 2. Verifying the generator capability to reject a load of greater than or equal to 655.7 kw while maintaining voltage at 4360 ± 436 volts and frequency at 60 ± 6.0 Hz.

SURVEILLANCE REQUIREMENTS (Continued)

3. Verifying the generator capability to reject a load of 4700 kW without tripping. The generator voltage shall not exceed 5450 volts during and following the load rejection.
4. Simulating a loss of offsite power by itself, and:
 - a) Verifying de-energization of the emergency busses and load shedding from the emergency busses.
 - b) Verifying the diesel starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds and operates for greater than or equal to 5 minutes while its generator is loaded with the permanently connected loads. After energization, the steady state voltage and frequency of the emergency busses shall be maintained at 4360 ± 436 volts and 60 ± 1.2 Hz during this test.
5. Verifying that on an ESF test signal (without loss of offsite power) the diesel generator starts on the auto-start signal and operates on standby for greater than or equal to 5 minutes. The steady state generator voltage and frequency shall be 4360 ± 436 volts and 60 ± 1.2 Hz within 10 seconds after the auto-start signal; the generator voltage and frequency shall be maintained within these limits during this test.
6. Deleted.
7. Simulating a loss of offsite power in conjunction with an ESF test signal, and
 - a) Verifying de-energization of the emergency busses and load shedding from the emergency busses.
 - b) Verifying the diesel starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds, energizes the auto connected emergency (accident) loads through the load sequence and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After loading, the steady state voltage and frequency of the emergency busses shall be maintained at 4360 ± 436 volts and $60 + 1.2/-0.3$ Hz during this test.

TABLE 4.8-1

DIESEL GENERATOR TEST SCHEDULE

<u>Number of Failures In Last 100 Valid Tests.*</u>	<u>Test Frequency</u>
≤ 1	At least once per 31 days
2	At least once per 14 days
3	At least once per 7 days
≥ 4	At least once per 3 days

* Criteria for determining number of failures and number of valid tests shall be in accordance with Regulatory Position C.2.e of Regulatory Guide 1.108, Revision 1, August 1977, where the last 100 tests are determined on a per nuclear unit basis. For the purposes of this test schedule, only valid tests conducted after the Operating License issuance date shall be included in the computation of the "last 100 valid tests". Entry into this test schedule shall be made at the 31 day test frequency.

ELECTRICAL POWER S EMS

AC SOURCES

SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.1.2 As a minimum, the following AC electrical power sources shall be OPERABLE:

- a. One circuit between the offsite transmission network and the onsite Class 1E distribution system, and
- b. One diesel generator with:
 1. Day fuel tanks containing a minimum volume of 325 gallons of fuel,
 2. A fuel storage system containing a minimum volume of 37,600 gallons of fuel, and
 3. A fuel transfer pump.

APPLICABILITY: MODES 5 and 6.

ACTION:

With less than the above minimum AC electrical power sources OPERABLE, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes and movement of irradiated fuel, or operation of the fuel handling machine with loads over the fuel storage pool. In addition, when in MODE 5 with the Reactor Coolant loops not filled, or in MODE 6 with the water level less than 23 feet above the reactor vessel flange, immediately initiate corrective action to restore the required sources to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

4.8.1.2.1 The above required circuit between the offsite transmission network and the onsite Class 1E distribution system shall be determined OPERABLE at

ELECTRICAL POWER SYSTEMS

AC SOURCES

SHUTDOWN

SURVEILLANCE REQUIREMENTS (continued)

least once per 7 days by verifying correct breaker alignment and indicated power availability.

- a. If the above required offsite source is supplied through the Unit 3 4160 volt Emergency Bus #3A04, the following buses are required:

480 volt Emergency Bus #3B04
125 volt Emergency Bus #3D1.

- b. If the above required offsite source is supplied through the Unit 3 4160 volt Emergency Bus #3A06, the following buses are required:

480 volt Emergency Bus #3B06
125 volt Emergency Bus #3D2

4.8.1.2.2 The above required diesel generator shall be demonstrated OPERABLE by performing the Surveillance Requirements of 4.8.1.1.2 (except 4.8.1.1.2 a.5, d.5, d.7, d.9, d.10, d.11 and d.13) and 4.8.1.1.3.

ELECTRICAL POWER SYSTEMS

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

3/4.8.1, 3/4.8.2, and 3/4.8.3 A.C. SOURCES, D.C. SOURCES and ONSITE POWER DISTRIBUTION SYSTEMS

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for 1) the safe shutdown of the facility and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criteria 17 of Appendix "A" to 10 CFR 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the safety analyses and are based upon maintaining at least one redundant set of onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. source. The A.C. and D.C. source allowable out-of-service times are based on Regulatory Guide 1.93, "Availability of Electrical Power Sources," December 1974. When one diesel generator is inoperable, there is an additional ACTION requirement to verify that all required systems, subsystems, trains, components and devices, that depend on the remaining OPERABLE diesel generator as a source of emergency power, are also OPERABLE, and that the steam-driven auxiliary feedwater pump is OPERABLE. This requirement is intended to provide assurance that a loss of offsite power event will not result in a complete loss of safety function of critical systems during the period one of the diesel generators is inoperable. The term verify as used in this context means to administratively check by examining logs or other information to determine if certain components are out-of-service for maintenance or other reasons. It does not mean to perform the surveillance requirements needed to demonstrate the OPERABILITY of the component.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The Surveillance Requirements verify the OPERABILITY of the required independent circuits between the offsite transmission network and the onsite Class 1E distribution system. Two independent circuits are required in Modes 1 through 4. One source of power is supplied from Unit 2 itself and is normally provided through the Reserve Auxiliary Transformers (2XR1 and 2XR2). If the Unit 2 main generator iso phase-bus links are removed, then the Unit Auxiliary Transformer 2XU1 can be used in place of 2XR1 and/or 2XR2. The second source of power is provided through the Unit 3 Reserve Auxiliary Transformers (3XR1 and 3XR2) and/or, with the Unit 3 generator iso phase bus links removed, the Unit 3 Unit Auxiliary Transformer (3XU1).

ELECTRIC POWER SYSTEMS

BASES

AC SOURCES, DC SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS (continued)

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guides 1.9 "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, and 1.108 "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977, and 1.137, "Fuel Oil Systems for Standby Diesel Generators," Revision 1, October 1979. Reg. Guide 1.137 recommends testing of fuel oil samples in accordance with ASTM-D270-1975. However, ASTM-D270-1965 was reverified in 1975 rather than re-issued. The reverified 1965 standard is therefore the appropriate standard to be used.

Additionally, Regulatory Guide 1.9 allows loading of the diesel generator to its 2000 hour rating in an accident situation. The full load, continuous operation rating for each diesel generator is 4700 kW, while the calculated accident loading in Modes 1 through 4 is 4000 kW. The largest anticipated load (including loads which are required to mitigate the consequences of a design basis accident or facilitate plant operation and maintenance) in Modes 5 and 6 is calculated to be less than 80% of the full rated capacity. No 2000 hour loading has been specified by the diesel generator manufacturer and, as a result the full loading rating of 4700 kW is conservatively established as the 2000 hour rating. Diesel frequency droop restrictions are established due to HPSI flow rate considerations.

The Surveillance Requirement for demonstrating the OPERABILITY of the Station batteries are based on the recommendations of Regulatory Guide 1.129, "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978, and IEEE Std. 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations."

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery thermal voltage onfloat charge, connection resistance values and the performance of battery service and discharge tests ensures the effectiveness of the charging system, the ability to handle high discharge rates and compares the battery capacity at that time with the rated capacity.

ELECTRIC POWER SYSTEMS

BASES

AC SOURCES, DC SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS (continued)

Table 4.8-2 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage and specific gravity. The limits for the designated pilot cells float voltage and specific gravity, greater than 2.13 volts and 0.15 below the manufacturer's full charge specific gravity or a battery charger current that had stabilized at a low value, is characteristic of a charged cell with adequate capacity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.13 volts and not more than .020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than .010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery.

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8-2 is permitted for up to 7 days. During this 7 day period: (1) the allowable values for electrolyte level ensures no physical damage to the plates with an adequate electron transfer capability; (2) the allowable value for the average specific gravity of all the cells, not more than .020 below the manufacturer's recommended full charge specific gravity, ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the allowable value for an individual cell's specific gravity, ensures that an individual cell's specific gravity will not be more than .040 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the allowable value for an individual cell's float voltage, greater than 2.07 volts, ensures the battery's capability to perform its design function.

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

Containment electrical penetrations and penetration conductors are protected by either deenergizing circuits not required during reactor operation or by demonstrating the OPERABILITY of primary and backup overcurrent protection circuit breakers during periodic surveillance.

The surveillance requirements applicable to lower voltage circuit breakers and fuses provides assurance of breaker and fuse reliability by testing at least one representative sample of each manufacturer's brand of circuit breaker and/or fuse. Each manufacturer's molded case and metal case circuit breakers and/or fuses are grouped into representative samples which are then tested on a rotating basis to ensure that all breakers and/or fuses are tested. If a wide variety exists within any manufacturer's brand of circuit breakers and/or fuses it is necessary to divide that manufacturer's breakers and/or fuses into groups and treat each group as a separate type of breaker or fuses for surveillance purposes.

The thermal overload protection contact integral with the motor starter of each valve listed in Table 3.8-2 is permanently bypassed in accordance with Regulatory Guide 1.106 "Thermal Overload Protection for Electric Motors on Motor Operated Valves", November, 1975.

ELECTRICAL POWER SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

- b. Demonstrated OPERABLE at least once per 18 months during shutdown by transferring (manually and automatically) unit power supply from the normal circuit to the alternate circuit.
- 4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:
- a. In accordance with the frequency specified in Table 4.8-1 on a STAGGERED TEST BASIS by:
 - 1. Verifying the fuel level in the day fuel tank,
 - 2. Verifying the fuel level in the fuel storage tank,
 - 3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the day tank,
 - 4. Verifying the diesel starts from ambient condition and accelerates to at least 900 rpm in less than or equal to 10 seconds. The generator voltage and frequency shall be 4360 ± 436 volts and 60 ± 1.2 Hz within 10 seconds after the start signal. The diesel generator shall be started for this test by using the manual start signal.
 - 5. Verifying the generator is synchronized, loaded to greater than or equal to 4700 kw in less than or equal to 77 seconds, and operates with a load greater than or equal to 4700 kw for at least an additional 60 minutes, and
 - 6. Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.
 - b. At least once per 31 days and after each operation of the diesel where the period of operation was greater than or equal to 1 hour by checking for and removing accumulated water from the day tank.
 - c. At least once per 92 days and from new fuel oil prior to addition to the storage tanks by verifying that a sample obtained in accordance with ASTM-D270-1975 has a water and sediment content of less than or equal to .05 volume percent and a kinematic viscosity @40°C of greater than or equal to 1.9 but less than or equal to 4.1 when tested in accordance with ASTM-D975-77, and an impurity level of less than 2 mg of insolubles per 100 ml. when tested in accordance with ASTM-D2274-70.
 - d. At least once per 18 months during shutdown by:
 - 1. Subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service.
 - 2. Verifying the generator capability to reject a load of greater than or equal to 655.7 kw while maintaining voltage at 4360 ± 436 volts and frequency at 60 ± 6.0 Hz.



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 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 27
License No. NPF-15

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The applications for amendment to the license for San Onofre Nuclear Generating Station, Unit 2 (the facility) filed by the Southern California Edison Company on behalf of itself and San Diego Gas and Electric Company, The City of Riverside and the City of Anaheim, California (licensees) dated January 25, May 23, and August 7, 1984 and August 20, 1985, comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations as set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, as amended, 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 set forth in 10 CFR Chapter I;
 - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public;
 - 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 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. 27, are hereby incorporated in the license. SCE shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This amendment is effective immediately and is to be fully implemented within 30 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION


George W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: NOV 22 1985

ATTACHMENT TO LICENSE AMENDMENT NO. 27FACILITY OPERATING LICENSE NO. NPF-15DOCKET NO. 50-362

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. Also to be replaced are the following overleaf pages to the amended pages.

Amendment Pages

3/4 8-4
3/4 8-8
3/4 8-8a
B 3/4 8-2
B 3/4 8-3

Overleaf Pages

3/4 8-3
3/4 8-7
-
B 3/4 8-1
-

ELECTRICAL POWER SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

- b. Demonstrated OPERABLE at least once per 18 months during shutdown by transferring (manually and automatically) unit power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:

- a. In accordance with the frequency specified in Table 4.8-1 on a STAGGERED TEST BASIS by:
 - 1. Verifying the fuel level in the day fuel tank,
 - 2. Verifying the fuel level in the fuel storage tank,
 - 3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the day tank,
 - 4. Verifying the diesel starts from ambient condition and accelerates to at least 900 rpm in less than or equal to 10 seconds. The generator voltage and frequency shall be 4360 ± 436 volts and 60 ± 1.2 Hz within 10 seconds after the start signal. The diesel generator shall be started for this test by using the manual start signal.
 - 5. Verifying the generator is synchronized, loaded to greater than or equal to 4700 kw in less than or equal to 77 seconds, and operates with a load greater than or equal to 4700 kw for at least an additional 60 minutes, and
 - 6. Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.
- b. At least once per 31 days and after each operation of the diesel where the period of operation was greater than or equal to 1 hour by checking for and removing accumulated water from the day tank.
- c. At least once per 92 days and from new fuel oil prior to addition to the storage tanks by verifying that a sample obtained in accordance with ASTM-D270-1975 has a water and sediment content of less than or equal to .05 volume percent and a kinematic viscosity @40°C of greater than or equal to 1.9 but less than or equal to 4.1 when tested in accordance with ASTM-D975-77, and an impurity level of less than 2 mg of insolubles per 100 ml. when tested in accordance with ASTM-D2274-70.
- d. At least once per 18 months during shutdown by:
 - 1. Subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service.
 - 2. Verifying the generator capability to reject a load of greater than or equal to 655.7 kw while maintaining voltage at 4360 ± 436 volts and frequency at 60 ± 6.0 Hz.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

3. Verifying the generator capability to reject a load of 4700 kW without tripping. The generator voltage shall not exceed 5450 volts during and following the load rejection.
4. Simulating a loss of offsite power by itself, and:
 - a) Verifying de-energization of the emergency busses and load shedding from the emergency busses.
 - b) Verifying the diesel starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds and operates for greater than or equal to 5 minutes while its generator is loaded with the permanently connected loads. After energization, the steady-state voltage and frequency of the emergency busses shall be maintained at 4360 ± 436 volts and 60 ± 1.2 Hz during this test.
5. Verifying that on an ESF test signal (without loss of offsite power) the diesel generator starts on the auto-start signal and operates on standby for greater than or equal to 5 minutes. The steady-state generator voltage and frequency shall be 4360 ± 436 volts and 60 ± 1.2 Hz within 10 seconds after the auto-start signal; the generator voltage and frequency shall be maintained within these limits during this test.
6. Deleted.
7. Simulating a loss of offsite power in conjunction with an ESF test signal, and
 - a) Verifying de-energization of the emergency busses and load shedding from the emergency busses.
 - b) Verifying the diesel starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds, energizes the auto connected emergency (accident) loads through the load sequence and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After loading, the steady state voltage and frequency of the emergency busses shall be maintained at 4360 ± 436 volts and $60 + 1.2/-0.3$ Hz during this test.

TABLE 4.8-1

DIESEL GENERATOR TEST SCHEDULE

Number of Failures In
Last 100 Valid Tests.*

Test Frequency

≤ 1

At least once per 31 days

2

At least once per 14 days

3

At least once per 7 days

≥ 4

At least once per 3 days

* Criteria for determining number of failures and number of valid tests shall be in accordance with Regulatory Position C.2.e of Regulatory Guide 1.108, Revision 1, August 1977, where the last 100 tests are determined on a per nuclear unit basis. For the purposes of this test schedule, only valid tests conducted after the Operating License issuance date shall be included in the computation of the "last 100 valid tests". Entry into this test schedule shall be made at the 31 day test frequency.

ELECTRICAL POWER SYSTEMS

AC SOURCES

SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.1.2 As a minimum, the following AC electrical power sources shall be OPERABLE:

- a. One circuit between the offsite transmission network and the onsite Class 1E distribution system, and
- b. One diesel generator with:
 1. Day fuel tanks containing a minimum volume of 325 gallons of fuel,
 2. A fuel storage system containing a minimum volume of 37,600 gallons of fuel, and
 3. A fuel transfer pump.

APPLICABILITY: MODES 5 and 6.

ACTION:

With less than the above minimum AC electrical power sources OPERABLE, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes and movement of irradiated fuel, or operation of the fuel handling machine with loads over the fuel storage pool. In addition, when in MODE 5 with the Reactor Coolant loops not filled, or in MODE 6 with the water level less than 23 feet above the reactor vessel flange, immediately initiate corrective action to restore the required sources to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

4.8.1.2.1 The above required circuit between the offsite transmission network and the onsite Class 1E distribution system shall be determined OPERABLE at

ELECTRICAL POWER SYSTEMS

AC SOURCES

SHUTDOWN

SURVEILLANCE REQUIREMENTS (continued)

least once per 7 days by verifying correct breaker alignment and indicated power availability.

- a. If the above required offsite source is supplied through the Unit 2 4160 volt Emergency Bus #2A04, the following buses are required:

- 480 volt Emergency Bus #2B04
 - 125 volt Emergency Bus #2D1

- b. If the above required offsite source is supplied through the Unit 2 4160 volt Emergency Bus #2A06, the following buses are required:

- 480 volt Emergency Bus #2B06
 - 125 volt Emergency Bus #2D2

4.8.1.2.2 The above required diesel generator shall be demonstrated OPERABLE by performing the Surveillance Requirements of 4.8.1.1.2 (except 4.8.1.1.2 a.5, d.5, d.7, d.9, d.10, d.11 and d.13) and 4.8.1.1.3.

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

3/4.8.1, 3/4.8.2, and 3/4.8.3 A.C. SOURCES, D.C. SOURCES and ONSITE POWER DISTRIBUTION SYSTEMS

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety-related equipment required for 1) the safe shutdown of the facility and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix "A" to 10 CFR 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources is consistent with the initial condition assumptions of the safety analyses and is based upon maintaining at least one redundant set of onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. source. The A.C. and D.C. source allowable out-of-service times are based on Regulatory Guide 1.93, "Availability of Electrical Power Sources," December 1974. When one diesel generator is inoperable, there is an additional ACTION requirement to verify that all required systems, subsystems, trains, components and devices, that depend on the remaining OPERABLE diesel generator as a source of emergency power, are also OPERABLE, and that the steam-driven auxiliary feedwater pump is OPERABLE. This requirement is intended to provide assurance that a loss of offsite power event will not result in a complete loss of safety function of critical systems during the period one of the diesel generators is inoperable. The term verify as used in this context means to administratively check by examining logs or other information to determine if certain components are out of service for maintenance or other reasons. It does not mean to perform the surveillance requirements needed to demonstrate the OPERABILITY of the component.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The Surveillance Requirements verify the OPERABILITY of the required independent circuits between the offsite transmission network and the onsite Class 1E distribution system. Two independent circuits are required in Modes 1 through 4. One source of power is supplied from Unit 3 itself and is normally provided through the Reserve Auxiliary Transformers (3XR1 and 3XR2). If the Unit 3 main generator iso phase bus links are removed, then the Unit Auxiliary Transformer 3XU1 can be used in place of 3XR1 and/or 3XR2. The second source of power is provided through the Unit 2 Reserve Auxiliary Transformers (2XR1 and 2XR2) and/or, with the Unit 2 generator iso phase bus links removed, the Unit 2 Unit Auxiliary Transformer (2XU1).

ELECTRIC POWER SYSTEMS

BASES

AC SOURCES, DC SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS (continued)

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guides 1.9 "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, and 1.108 "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977, and 1.137, "Fuel Oil Systems for Standby Diesel Generators," Revision 1, October 1979. Reg. Guide 1.137 recommends testing of fuel oil samples in accordance with ASTM-D270-1975. However, ASTM-D270-1965 was reverified in 1975 rather than re-issued. The reverified 1965 standard is therefore the appropriate standard to be used.

Additionally, Regulatory Guide 1.9 allows loading of the diesel generator to its 2000 hour rating in an accident situation. The full load, continuous operation rating for each diesel generator is 4700 kW, while the calculated accident loading in Modes 1 through 4 is 4000 kW. The largest anticipated load (including loads which are required to mitigate the consequences of a design basis accident or facilitate plant operation and maintenance) in Modes 5 and 6 is calculated to be less than 80% of the full rated capacity. No 2000 hour loading has been specified by the diesel generator manufacturer and, as a result the full loading rating of 4700 kW is conservatively established as the 2000 hour rating. Diesel frequency droop restrictions are established due to HPSI flow rate considerations.

The Surveillance Requirement for demonstrating the OPERABILITY of the Station batteries are based on the recommendations of Regulatory Guide 1.129, "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978, and IEEE Std. 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations."

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery thermal voltage onfloat charge, connection resistance values and the performance of battery service and discharge tests ensures the effectiveness of the charging system, the ability to handle high discharge rates and compares the battery capacity at that time with the rated capacity.

ELECTRIC POWER SYSTEMS

BASES

AC SOURCES, DC SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS (continued)

Table 4.8-2 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage and specific gravity. The limits for the designated pilot cells float voltage and specific gravity, greater than 2.13 volts and 0.15 below the manufacturer's full charge specific gravity or a battery charger current that had stabilized at a low value, is characteristic of a charged cell with adequate capacity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.13 volts and not more than .020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than .010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery.

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8-2 is permitted for up to 7 days. During this 7-day period: (1) the allowable values for electrolyte level ensure no physical damage to the plates with an adequate electron transfer capability; (2) the allowable value for the average specific gravity of all the cells, not more than .020 below the manufacturer's recommended full charge specific gravity, ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the allowable value for an individual cell's specific gravity, ensures that an individual cell's specific gravity will not be more than .040 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the allowable value for an individual cell's float voltage, greater than 2.07 volts, ensures the battery's capability to perform its design function.

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

Containment electrical penetrations and penetration conductors are protected by either deenergizing circuits not required during reactor operation or by demonstrating the OPERABILITY of primary and backup overcurrent protection circuit breakers during periodic surveillance.

The surveillance requirements applicable to lower voltage circuit breakers and fuses provide assurance of breaker and fuse reliability by testing at least one representative sample of each manufacturer's brand of circuit breaker and/or fuse. Each manufacturer's molded case and metal case circuit breakers and/or fuses are grouped into representative samples which are then tested on a rotating basis to ensure that all breakers and/or fuses are tested. If a wide variety exists within any manufacturer's brand of circuit breakers and/or fuses it is necessary to divide that manufacturer's breakers and/or fuses into groups and treat each group as a separate type of breaker or fuse for surveillance purposes.

The thermal overload protection contact integral with the motor starter of each valve listed in Table 3.8-2 is permanently bypassed in accordance with Regulatory Guide 1.106 "Thermal Overload Protection for Electric Motors on Motor Operated Valves", November, 1975.



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

SAFETY EVALUATION

AMENDMENT NO. 38 TO NPF-10

AMENDMENT NO. 27 TO NPF-15

SAN ONOFRE NUCLEAR GENERATING STATION, UNITS 2 & 3

DOCKET NOS. 50-361 AND 50-362

Introduction

Southern California Edison Company (SCE), on behalf of itself and the other licensees, San Diego Gas and Electric Company, The City of Riverside, California, and The City of Anaheim, California, has submitted several applications for license amendments for San Onofre Nuclear Generating Station, Units 2 and 3.

Two such requests are evaluated herein. These are proposed change PCN-91 requested by letters dated January 25, 1984 and August 20, 1985 and proposed change PCN-137, requested by letters dated May 23 and August 7, 1984 and August 20, 1985. The proposed changes would revise Technical Specifications (T.S.) 3/4.8.1.1, "Electrical Power Systems - A.C. Sources - Operating," and 3/4.8.1.2, "Electrical Power Systems - A.C. Sources - Shutdown," as follows: 1) PCN-91 would delete Technical Specification 4.8.1.1.1.d.6, a diesel generator surveillance requirement, to test reloading of a diesel generator following its failure with offsite power not available, consistent with the recommendation of Generic Letter 83-30. 2) PCN-137 would revise Technical Specification 3/4.8.1.2 to include only those limiting conditions for operation (LCO's) and surveillance requirements which directly relate to the operability of the A.C. power sources required under shutdown and refueling conditions.

Evaluation

The staff evaluation of each of the changes proposed by the licensees is given below:

1. Proposed Change PCN-91

The proposed change would delete Surveillance Requirement 4.8.1.1.2.d.6 of Technical Specification 3/4.8.1, "A.C. Sources," which defines the operability requirements of A.C. electrical power sources. T. S. 4.8.1.1.2 states the

requirements for demonstrating diesel generator operability. Surveillance Requirement 4.8.1.1.2.d.6 states that once every eighteen months, during shutdown, loss of both offsite and diesel generator power must be simulated in order to verify that in this situation all loads depending on the diesel generators will be shed and the diesels will be reloaded in accordance with design requirements. The proposed change would delete this surveillance requirement. This change was requested in response to NRC Generic Letter 83-30, "Deletion of Standard Technical Specification Surveillance Requirement 4.8.1.1.2.1.6 for Diesel Generator Testing."

Deletion of Requirement 4.8.1.1.2.d.6 is based on its inconsistency with 10 CFR 50, Appendix A, General Design Criterion 17, "Electrical Power Systems;" Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants;" and the Standard Review Plan Sections 8.2, "Offsite Power System," and 8.3.1, "A.C. Power Systems (Onsite)." These references, which delineate the requirements for diesel generators, do not require diesel generator operability tests such as that currently specified by T.S. 4.8.1.1.2.d.6. Because the result of Proposed Change PCN-91 would make the technical specifications conform to current acceptance criteria and meet the criteria of Generic Letter 83-30, it is acceptable to the NRC staff.

2. Proposed Change PCN-137

The proposed change would revise Technical Specification 3/4.8.1.2, "Electrical Power Systems - A.C. Sources - Shutdown," which defines the requirements for A.C. electrical power source operability during operating Modes 5 and 6. The surveillance requirements governing emergency diesel generator (EDG) operability in Modes 5 and 6 currently prescribe all those surveillances required in Modes 1 through 4 with one exception. The proposed change would revise T.S. 3/4.8.1.2 and T.S. Bases 3/4.9 to include only those limiting conditions for operation and surveillance requirements which verify operability of the A.C. sources required under shutdown and refueling conditions (Modes 5 and 6, respectively). The following functions are not required to be performed by the EDG during Modes 5 and 6 and, on that basis the surveillance requirements relating to these functions would be deleted by the proposed change. The items to be deleted are: 1) automatic start of the EDG on an emergency safety features (ESF) signal, on loss of offsite power in conjunction with an ESF signal, or from a test mode; and 2) automatic load sequencing on a ESF signal. Also proposed to be deleted is the surveillance requirement specifying the maximum auto-connected loads applicable in Modes 1 through 4, since in Modes 5 and 6 no load except the permanently connected shutdown loads are automatically connected to the EDG. In addition, it is proposed that the specification stating the minimum volume of diesel generator fuel to be stored be revised to require a minimum of 37,600 gallons of fuel rather than 47,000 gallons of fuel.

The 18-month testing for the integrated ESF surveillances are due to be performed by November 24, 1985. This date includes the allowed 25% extension and occurs part-way through the outage. If the surveillances are not performed at the beginning of the refueling outage, the diesel generators must be declared inoperable after the date under the current technical specification. The integrated ESF test would also have to be performed again at the end of the outage, to verify equipment operability after completion of currently planned major maintenance on ESF equipment and to avoid a shutdown due to surveillance expiration prior to the next refueling outage. Performing the integrated ESF tests twice during the outage would add approximately five additional critical path days to the refueling outage schedule.

The Surveillance Requirements governing emergency diesel generator operability in Modes 5 and 6 (Section 4.8.1.2) currently prescribe all those surveillances required in Modes 1 through 4 (Section 4.8.1.1) with one exception (Section 4.8.1.1.2.a.5). Automatic start of the diesel generator on an ESF signal, on loss of offsite power in conjunction with an ESF signal or from a test mode is not required in Modes 5 and 6. Therefore, the licensees proposed to delete the Sections 4.8.1.1.2.d.5, d.7 and d.11 which are related to the ESF signal. Automatic load sequencing on ESF signal is also not required in MODES 5 and 6, and, therefore, the licensees have proposed to delete Sections 4.8.1.1.2.d.9 and d.13. In addition to the above, the proposed change has been revised to delete 4.8.1.1.2.d.10. This surveillance requirement demonstrates the ability to synchronize and transfer emergency loads to the offsite source on its restoration. This is not a function required to support Modes 5 and 6 operation.

In summary, the above-described changes to Technical Specification 4.8.1.2 will reduce the surveillance requirements for demonstration of diesel generator operability in Modes 5 and 6. However the licensees have stated that they will complete all surveillance requirements prior to entry into Mode 4 on startup as required by the Technical Specification 3/4.8.1.1, "AC Source - Operating." Therefore, the necessary testing of these functions will be performed prior to their being needed for safe plant operation.

For the reasons given above, the NRC staff concludes that Proposed Change PCN-137 meets the requirements of the SRP and is acceptable.

Contact With State Official

The NRC staff has advised the Chief of the Radiological Health Branch, State Department of Health Services, State of California, of the proposed determinations of no significant hazards consideration. No comments were received.

Environmental Consideration

These amendments involve changes in the installation or use of facility components located within the restricted area. The staff has determined that the amendments involve no significant increase in the amounts of any effluents that may be released offsite and that there is no significant increase in individual or commulative occupation radiation exposure. The Commission has previously issued proposed findings that the amendments involve no significant hazards consideration, and there has been no public comment on such findings. Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR Sec. 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need to be prepared in connection with the issuance of these amendments.

Conclusion

Based upon our evaluation of the proposed changes to the San Onofre Units 2 and 3 Technical Specifications, we have concluded that: there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and such activities will be conducted in compliance with the Commission's regulations and the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public. We, therefore, conclude that the proposed changes are acceptable, and are hereby incorporated into the San Onofre 2 and 3 Technical Specifications.

Dated: NOV 22 1985