

1111

Southern California Edison Company

P.O. BOX 800

2244 WALNUT GROVE AVENUE
ROSEMEAD, CALIFORNIA 91770

KENNETH P. BASKIN
VICE PRESIDENT

TELEPHONE
818-302-1401

March 4, 1989

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
One White Flint Road
11555 Rockville Pike
Rockville, Maryland 20852

Gentlemen:

Subject: Docket No. 50-206
Supplement 2 to Amendment Application No. 159
Voltage Acceptance Criterion for Diesel Generator Load Rejection
Test
San Onofre Nuclear Generating Station, Unit 1

By letter dated November 11, 1988, SCE submitted Amendment Application No. 159 to include pertinent surveillance of a planned modification to trip safety injection and feedwater pumps on low-low RWST level. As a result of this modification, a revision to the diesel generator surveillance test specification was necessary to accommodate increased rejected load due to the concurrent trip of feedwater and safety injection pumps following a SISLOP.

In ensuing discussions, the NRC staff required inclusion of an additional specification to limit voltage transients during and following the diesel generator load rejection to ensure the availability of safe shutdown auxiliary system equipment. This is consistent with the Westinghouse Standard Technical Specifications and recommendations of Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units Used as Onsite Electrical Power Systems at Nuclear Power Plants."

8903130090 890304
PDR ADDCK 05000206
PDC

A001
1/1

This supplement provides the additional voltage acceptance criterion in the diesel generator surveillance test specification.

If you have any questions regarding this matter, please contact me.

Respectfully submitted,

By: *Kenneth P. Baskin*
Kenneth P. Baskin
Vice President

Subscribed and sworn to before me this
4th day of March, 1989.

Carol A. Gomez
Notary Public in and for the County of
Los Angeles, State of California



cc: J. B. Martin, Regional Administrator, NRC Region V
F. R. Huey, NRC Senior Resident Inspector, San Onofre Units 1, 2 and 3

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of SOUTHERN)
CALIFORNIA EDISON COMPANY)
and SAN DIEGO GAS & ELECTRIC)
COMPANY San Onofre Nuclear)
Generating Station Unit No. 1)

Docket No. 50-206

CERTIFICATE OF SERVICE

I hereby certify that a copy of the Supplement to Amendment Application No. 156 was served on the following by deposit in the United States Mail, postage prepaid, on the 6th day of March, 1989.

Benjamin H. Vogler, Esq.
Staff Counsel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

David R. Pigott, Esq.
Samuel B. Casey, Esq.
Orrick, Herrington & Sutcliffe
600 Montgomery Street
San Francisco, California 94111

L. G. Hinkleman
Bechtel Power Corporation
P.O. Box 60860, Terminal Annex
Los Angeles, California 90060

Michael L. Mellor, Esq.
Thelen, Marrin, Johnson & Bridges
Two Embarcadero Center
San Francisco, California 94111

Huey Johnson
Secretary for Resources
State of California
1416 Ninth Street
Sacramento, California 95814

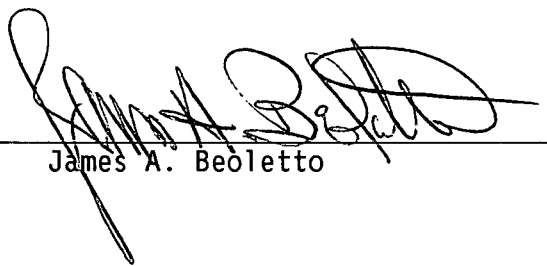
Janice E. Kerr, General Counsel
California Public Utilities Commission
5066 State Building
San Francisco, California 94102

C. J. Craig
Manager U. S. Nuclear Projects I
ESSD
Westinghouse Electric Corporation
Post Office Box 355
Pittsburgh, Pennsylvania 15230

A. I. Gaede
23222 Cheswald Drive
Laguna Niguel, California 92677

Frederick E. John, Executive Director
California Public Utilities Commission
5050 State Building
San Francisco, California 94102

Docketing and Service Section
Office of the Secretary
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555



James A. Beoletto

03310

DESCRIPTION OF SUPPLEMENTAL CHANGES TO PROPOSED CHANGE
NO. 186 TO THE TECHNICAL SPECIFICATIONS PROVISIONAL
OPERATING LICENSE NO. DPR-13
Supplement 2

The following is a supplemental request to revise Section 4.4, "Emergency Power System Periodic Testing," of the Appendix A, Technical Specifications for San Onofre Nuclear Generating Station, Unit 1 (SONGS 1).

Description of Supplemental Change

Subsequent to the submittal of Amendment Application No. 159, the NRC staff requested further information regarding the diesel generator load rejection test. In ensuing discussions, the NRC staff required an additional specification, consistent with the Westinghouse Standard Technical Specifications and Regulatory Guide 1.108, to monitor the diesel generator voltage during and following the load rejection. This supplement will provide the voltage acceptance criterion in Section 4.4, "Emergency Power System Periodic Testing," of the Technical Specifications.

Existing Technical Specifications

See Attachment 1.

Proposed Technical Specifications

See Attachment 2.

Significant Hazards Consideration Analysis

As required by 10 CFR 50.91(a)(1), this analysis is provided to demonstrate that a supplemental license amendment to implement revised provisions for this proposed change and operability for SONGS 1 represents no significant hazards consideration. In accordance with the three factor test of 10 CFR 50.92(c), implementation of the proposed license amendment was analyzed using the following standards and found not to: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

An additional voltage acceptance criterion of 4,800 volts in the surveillance testing during the diesel generator load rejection test provides assurances that the auxiliary system equipment will not be subjected to an overvoltage condition. This is consistent with the Westinghouse Standard Technical Specifications and recommendations of Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units used as Onsite Electric Power Systems at Nuclear Power Plants."

The proposed specification of 4,800 volts is based on the diesel generator's rated output voltage of 4,360 volts plus a 10% margin. Safe shutdown electrical components are designed to operate through overvoltage conditions or are electrically isolated from the transient overvoltage by the maintained 125 VDC system. Therefore, the proposed specification will ensure the overvoltage condition as a result of diesel generator load rejection will not adversely affect the safe shutdown auxiliary system equipment.

Analysis

The proposed change described above shall be deemed to involve a significant hazards consideration if there is a positive finding in any of the following areas:

1. Will operation of the facility in accordance with this proposed change involve a significant increase in the probability or consequences of any accident previously evaluated?

Response: No

The supplemental change provides an additional specification to monitor the voltage transient during the diesel generator load rejection tests to ensure that electrical equipment does not sustain damage as a result of potential transient overvoltage conditions. This Technical Specification change does not impact the accident probabilities or consequences since it ensures that the diesel generators are operating in an acceptable condition. Diesel generators provide power to accident mitigating equipment during post-accident conditions. The voltage acceptance criterion of 4,800 volts is based on the diesel generator's rated output voltage of 4,360 volts plus a 10% margin. This is consistent with industry standards, e.g., ANSI and IEEE, for operating limits of electrical equipment. The motors for pumps and MOVs, which constitute the majority of the safe shutdown loads on the auxiliary system, are electrically tested beyond this potential transient overvoltage condition and, thus, would not be adversely affected by the overvoltage. The remaining components on the auxiliary system, including the battery charger, can withstand the potential transient overvoltage condition during and following the diesel generator load rejection. The electronic components required for safe shutdown are powered from the maintained 120 VAC and 125 VDC buses which are isolated from the transient overvoltage conditions through the 125 VDC system. Therefore, the proposed change will not involve a significant increase in the probability or consequences of any accident previously evaluated.

2. Will operation of the facility in accordance with this proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

The supplemental change to the Technical Specifications provides a voltage acceptance criterion for the diesel generator load rejection test to ensure that the diesel generators will operate as designed during an accident condition. The load rejection test, including the voltage measurement, is a part of surveillance at refueling intervals and does not affect the existing transient analyses. This specification is consistent with the Westinghouse Standard Technical Specifications and the recommendations of Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units used as Onsite Electric Power Systems at Nuclear Power Plants." Therefore, the proposed change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Will operation of the facility in accordance with this proposed change involve a significant reduction in a margin of safety?

Response: No

The additional specification on the voltage acceptance criterion on the diesel generator load rejection surveillance provides consistency with the Westinghouse Standard Technical Specifications and Regulatory Guide 1.108. This specification ensures that safe shutdown equipment required in a postulated accident is not subjected to an overvoltage condition during and following a load rejection. The voltage acceptance criterion of 4,800 volts is within the acceptable electrical operating limits of the safe shutdown equipment powered from the emergency diesel generators. Therefore, the proposed change will not involve any reduction in a margin of safety.

Safety and Significance Hazards Consideration Determination

Based on the Safety Evaluation provided in Amendment Application No. 159 and the information provided above, it is concluded that: (1) the supplemental changes to Proposed Change No. 186 do not involve a significant hazards considerations defined by 10 CFR 50.92; and (2) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed change.

Attachment 1

Existing Technical Specifications

4.4 EMERGENCY POWER SYSTEM PERIODIC TESTING

<u>APPLICABILITY:</u>	Applies to testing of the Emergency Power System.	82 11/7/84
<u>OBJECTIVE:</u>	To verify that the Emergency Power System will respond promptly and properly when required.	
<u>SPECIFICATION:</u>	<p>A. The required offsite circuits shall be determined OPERABLE at least once per 7 days by verifying correct breaker alignments and power availability.</p> <p>B. The required diesel generators shall be demonstrated OPERABLE:</p> <p>1. At least once per 31 days on a STAGGERED TEST BASIS by:</p> <p>a. Verifying the diesel performs a DG SLOW START from standby conditions,</p> <p>b. Verifying a fuel transfer pump can be started and transfers fuel from the storage system to the day tank,</p> <p>c. Verifying the diesel generator is synchronized and running at 4500 kW \pm 5% for \geq 60 minutes, to include a brief load increase to 5250 kW \pm 5%,</p> <p>d. Verifying the diesel generator is aligned to provide standby power to the associated emergency buses,</p> <p>e. Verifying the day tank contains a minimum of 290 gallons of fuel, and</p> <p>f. Verifying the fuel storage tank contains a minimum of 37,500 gallons of fuel.</p> <p>2. At least once per 3 months by verifying that a sample of diesel fuel from the required fuel storage tanks is within the acceptable limits as specified by the supplier when checked for viscosity, water and sediment.</p> <p>C. AC Distribution</p> <p>1. The required buses specified in Technical Specification 3.7, Auxiliary Electrical Supply, shall be determined OPERABLE and energized from AC sources other than the diesel generators with tie breakers open between redundant buses at least once per 7 days by verifying correct breaker alignment and power availability.</p>	<p>84 11/14/84</p> <p>105 7/22/88</p> <p>34 4/1/77</p> <p>105 7/22/88</p> <p>34 4/1/77</p> <p>84 11/14/84</p> <p>34 4/1/77</p>

D. The required DC power sources specified in Technical Specification 3.7 shall meet the following:

84
11/14/84

1. Each DC Bus train shall be determined OPERABLE and energized at least once per 7 days by verifying correct breaker alignment and power availability.

34
4/1/77

2. Each 125 volt battery bank and charger shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that:

(1) The parameters in Table 4.4-1 meet the Category A limits, and

(2) The total battery terminal voltage is greater than or equal to 129 volts on float charge.

b. At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 110 volts, or battery overcharge with battery terminal voltage above 150 volts, by verifying that:

84
11/14/84

(1) The parameters in Table 4.4-1 meet the Category B limits,

(2) There is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150×10^{-6} ohms, and

(3) The average electrolyte temperature of ten connected cells is above 61°F for battery banks associated with DC Bus No. 1 and DC Bus No. 2 and above 48°F for the UPS battery bank.

c. At least once per 18 months by verifying that:

(1) The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration,

34
4/1/77

(2) The cell-to-cell and terminal connections are clean, tight and coated with anti-corrosion material,

(3) The resistance of each cell-to-cell and terminal connection is less than or equal to 150×10^{-6} ohms,

84
11/14/84

- (4) The battery charger for 125 volt DC Bus No. 1 will supply at least 800 amps DC at 130 volts DC for at least 8 hours,
- (5) The battery charger for 125 volt DC Bus No. 2 will supply at least 45 amps DC at 130 volts DC for at least 8 hours, and
- (6) The battery charger for the UPS will supply at least 10 amps AC at 480 volts AC for at least 8 hours as measured at the output of the UPS inverter.

84
11/14/84

- d. At least once per 18 months, during shutdown, by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status all of the actual or simulated emergency loads for the design duty cycle when the battery is subjected to a battery service test.
- e. At least once per 60 months, during shutdown, by verifying that the battery capacity is at least 80%, 85% for Battery Bank No. 1, of the manufacturer's rating when subjected to a performance discharge test. Once per 60 month interval, this performance discharge test may be performed in lieu of the battery service test required by Surveillance Requirement 4.4.D.2.d.
- f. Annual performance discharge tests of battery capacity shall be given to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

117
12/13/88

E. The required Safety Injection System Load Sequencer shall be demonstrated OPERABLE at least once per 31 days on a staggered test basis, by simulating SISLOP* conditions and verifying that the resulting interval between each load group is within $\pm 10\%$ of its design interval.

84
11/14/84

F. The required diesel generators and the Safety Injection System Load Sequencer shall be demonstrated OPERABLE 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. Simulating SISLOP*, and:

- | | |
|---|----------------|
| a. Verifying operation of circuitry which locks out non-critical equipment, | 84
11/14/8 |
| b. Verifying the diesel performs a DG FAST START from standby condition on the auto-start signal, energizes the emergency buses with permanently connected loads and the auto connected emergency loads** through the load sequencer (with the exception of the feedwater, safety injection, charging and refueling water pumps whose respective breakers may be racked-out to the test position) and operates for ≥ 5 minutes while its generator is loaded with the emergency loads, | 105
7/22/88 |
| c. Verifying that on the safety injection actuation signal, all diesel generator trips, except engine overspeed and generator differential, are automatically bypassed. | 84
11/14/8 |
| 3. Verifying the generator capability to reject a load of 3220 kW without tripping. | 95
7/3/86 |
| | 84
11/14/8 |

* SISLOP is the signal generated by coincident loss of offsite power (loss of voltage on Buses 1C and 2C) and demand for safety injection.

** The sum of all loads on the engine shall not exceed 5250 kW + 5%.

105
7/22/88