



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

September 27, 1991

Docket No. 50-261

Mr. Lynn W. Eury
Executive Vice President
Power Supply
Carolina Power & Light Company
Post Office Box 1551
Raleigh, North Carolina 27602

Dear Mr. Eury:

SUBJECT: ISSUANCE OF AMENDMENT NO. 136 TO FACILITY OPERATING LICENSE NO. DPR-23
REGARDING LOSS OF VOLTAGE RELAY SURVEILLANCE - H. B. ROBINSON STEAM
ELECTRIC PLANT, UNIT NO. 2 (TAC NO. 81702)

On September 18, 1991, you requested a Waiver of Compliance and a Technical Specification (TS) amendment with respect to the H. B. Robinson Steam Electric Plant, Unit No. 2, TS Table 3.5.3. The Waiver of Compliance was granted verbally on September 18, 1991, as confirmed by letter dated September 19, 1991, until the processing of this emergency TS amendment could be completed. The amendment request was supplemented on September 18, 1991, to respond to NRC questions and again on September 23, 1991, to clarify the proposed wording in the TS.

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 136 to Facility Operating License No. DPR-23 for the H. B. Robinson Steam Electric Plant, Unit No. 2. This amendment consists of changes to the TS in response to your request dated September 18, 1991.

The amendment adds a footnote (d) to TS Table 3.5.3, Item 3a, that allows power operation to continue until an outage of sufficient duration that the surveillance test of TS Table 4.1-1, Item 32.a and TS 4.6.1.2 to verify circuit adequacy may be performed, but no later than Refueling Outage No. 14.

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Docket No. 50-261

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See attached page

A copy of the related Safety Evaluation is enclosed. Notice of Issuance will be included in the Commission's bi-weekly Federal Register notice.

Sincerely,

Original signed by:

Ronnie H. Lo, Senior Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No. 136 to DPR-23
- 2. Safety Evaluation

cc w/enclosures:
See next page

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Mr. L. W. Eury
Carolina Power & Light Company

H. B. Robinson Steam Electric
Plant, Unit No. 2

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

CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-261

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 136
License No. DPR-23

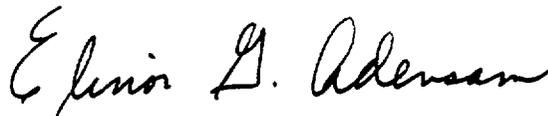
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Carolina Power & Light Company (the licensee), dated September 18, 1991, as supplemented September 18, 1991, and September 23, 1991, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and 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 3.B. of Facility Operating License No. DPR-23 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 136, are hereby incorporated in the license. Carolina Power & Light Company shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Elinor G. Adensam, Director
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: September 27, 1991

ATTACHMENT TO LICENSE AMENDMENT NO. 136

FACILITY OPERATING LICENSE NO. DPR-23

DOCKET NO. 50-261

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised areas are indicated by marginal lines.

Remove Pages

3.5-15

Insert Pages

3.5-15

TABLE 3.5-3 (Continued)

INSTRUMENTATION OPERATING CONDITIONS FOR ENGINEERED SAFETY FEATURES

<u>NO.</u>	<u>FUNCTIONAL UNIT</u>	<u>1 MINIMUM CHANNELS OPERABLE</u>	<u>2 MINIMUM DEGREE OF REDUNDANCY</u>	<u>3 OPERATOR ACTION IF CONDITIONS OF COLUMN 1 OR 2 CANNOT BE MET</u>
2.	CONTAINMENT SPRAY			
	a. Manual*	2	0**	Cold Shutdown
	b. High Containment Pressure* (Hi-Hi Level)	2/set	1/set	Cold Shutdown
3.	LOSS OF POWER			
	a. 480V Emerg. Bus Undervoltage (Loss of Voltage)	2/bus ^(a)	1/bus ^(b)	Main Hot Shutdown ^(d)
	b. 480V Emerg. Bus Undervoltage (Degraded Voltage)	2/bus	1/bus	Maintain Hot Shutdown ^(c)

* Also initiates a Phase B containment isolation.

** Must actuate two switches simultaneously.

*** When primary pressure is less than 2000 psig, channels may be blocked.

**** When primary temperature is less than 547°F, channels may be blocked.

***** In this case the 2/3 high steam flow is already in the trip mode.

(a) During testing and maintenance of one channel, may be reduced to 1/bus.

(b) During testing and maintenance of one channel, may be reduced to 0/bus.

(c) The reactor may remain critical below the power operating conditions with this feature inhibited for the purpose of starting reactor coolant pumps.

(d) A one-time-only exception is granted that allows power operation to continue with the actuation circuitry of this Specification declared inoperable due solely to the inability of the surveillance procedure for TS Table 4.1-1, Item 32a and TS 4.6.1.2 to separately assess operability of each of the two channels of the affected circuits. The duration of this exception is limited to the first outage of sufficient length which allows performance of a surveillance test which adequately tests the affected circuits but not later than Refueling Outage 14.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 136 TO FACILITY OPERATING LICENSE NO. DPR-23

CAROLINA POWER & LIGHT COMPANY

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

DOCKET NO. 50-261

1.0 INTRODUCTION

By letter dated September 18, 1991, Carolina Power & Light Company (CP&L or the licensee) requested an emergency amendment to change the Technical Specification (TS) Table 3.5-3, Item 3a, for the H. B. Robinson Steam Electric Plant, Unit No. 2 (HBR2). The proposed emergency TS amendment would add a footnote to the action statement. This footnote would permit a one-time only exception for the remainder of fuel Cycle 14 that allows power operation to continue until an outage of sufficient duration so that the surveillance tests of TS Table 4.1.1, Item 32a (loss of voltage channels), and TS 4.6.1.2 (load shedding) may be performed, but no later than Refueling Outage No. 14. Cycle 14 is currently scheduled to end in March 1992.

2.0 BACKGROUND

The licensee's recent review of the electrical distribution system protective circuits has determined that the way the surveillance test of TS Table 4.1.1, Item 32a, is being performed on the loss of voltage (LOV) channels in the 480 v emergency bus was not capable of determining which of the two channels per train would produce the desired separation from the offsite power and load shed. The review has also determined that the current load shedding surveillance (TS 4.6.1.2) method being performed each refueling interval could not verify shedding of all the engineered safety features (ESF) loads. Since TS 3.0, Limiting Condition for Operation (LCO), provides insufficient time to perform those tests, this amendment would provide a one time exception to the action statement that would have required the plant to go to hot shutdown.

By letter dated September 18, 1991, CP&L requested a Temporary Waiver of Compliance (TWC) from the requirement of TS Table 3.5-3, Item 3a, to allow plant operation with all four channels technically inoperable. The channels were declared inoperable only on the basis of the required surveillance not having been performed. By letter dated September 19, 1991, the NRC granted the TWC until the staff completes the processing of the licensee's request for the emergency TS amendment.

3.0 EVALUATION

The safety function of the LOV protection circuits is to isolate the emergency bus from its normal (offsite) power supply in the event that the supply is lost and to shed any loads on the bus. Upon the start of the emergency diesel generator (EDG), all the ESF loads sequence onto the bus in rapid succession to prevent block loading of the EDG. The LOV circuit is designed with redundant channels on each of two trains, each capable of isolating the offsite power supply and shedding loads on the bus. (Note that the EDG start signal is generated by only one of the two relays per train.)

The TS Table 3.5-3, Item 3a, requires two out of two channels to be operable. However, the channel functional test (TS Table 4.1.1, Item 32a and Table 3.5-1, Item 6a) performed during refueling prescribes that the channel action is to be tested by tripping the normal supply breaker. On this basis, the licensee contends that it has been demonstrating the combined ability to perform the above safety function, despite not knowing which of the two redundant channels caused the function to occur or whether one of the channels may not have functioned.

With regard to ESF load shedding surveillance test (TS 4.6.1.2), the licensee explained that even though the safety injection/loss of offsite power test performed at each refueling initiates an actual loss of voltage on the emergency buses, several safety load breakers were already open at the beginning of the test. Thus, the licensee stated that the receipt of load shedding signals for all ESF loads was not able to be verified by means of these breakers changing position.

Due to the inability to determine the overall operability of the protective features identified above, all four channels were declared technically inoperable; and TS 3.0 required the plant to be placed in hot shutdown within 8 hours.

CP&L has completed an evaluation of the proposed emergency TS change. They concluded that the safety significance is minimal since there is a high degree of confidence that the four channels are capable of performing their intended function based on the following:

1. During refueling outage No. 13, all loads on the emergency buses that were connected at the time did shed, and the EDGs were started by their respective undervoltage relay.
2. During refueling outage No. 12, the incoming 4 kv line breaker was tripped which resulted in the emergency buses normal supply breakers tripping on undervoltage.
3. During the January 26, 1986, loss of offsite power event, the operating emergency bus did trip.
4. The trip coils of the load breakers were tested during normal surveillance testing and tested satisfactory.

5. There have been no reported failures at HBR2 of the MG-6 relays for the last 10 years and only 35 reported failures in the Nuclear Plant Reliability Data System (NPRDS) file.
6. The licensee has reviewed the failure consequence of each channel of LOV protection circuits, found that the worst overall consequence would be a failure of one train, and identified no common mode of design or component failures which would affect both trains.

In addition, the licensee committed in the amendment request to take the following compensatory action during the time the waiver is in effect:

A Manager-Operations Directive has been written to shift supervisors in the control room which provides a summary of this issue and guidance for each operating crew including requiring them to review existing procedures that would be used in the event of failure of this circuitry. The Directive also identifies caution tags that have been placed on the RTGB, 480 v buses E-1 and E-2 and the EDG control panel alerting operators to this issue.

4.0 FINDINGS

The NRC staff has reviewed the proposed emergency TS amendment request. We find that:

1. CP&L has verified operability of the undervoltage relays, load breakers, and most of the interposing relays to ensure LOV and load shedding functions by testing and/or calibrating.
2. Current testing does check the overall LOV function of each train and current testing method of the load shedding was successful for all the ESF loads on the bus.
3. For the worst single failure of one LOV channel, one of the two trains (i.e., emergency bus) is available to achieve a safe plant shutdown under the Updated Final Safety Analysis Report, Chapter 15, design basis accident.
4. A compensatory action makes operating crews aware of the effects of a LOV channel failure.
5. CP&L has committed to develop testing procedures for validation of the full functionality of the LOV channels and load shedding features.

Based on the above findings, we concur with the licensee that there is sufficient assurance that the LOV protection and load shedding functions will perform their required action in the as-tested configuration. Therefore, the proposed one-time exception from the action statement of TS Table 3.5-3, Item 3a, that allows power operation to continue until an outage of sufficient duration, but not later than refueling outage No. 14, would not have an unacceptable effect on the overall safety of the plant and is acceptable.

5.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission has determined the amendment involves no significant hazards consideration per 10 CFR 50.92, based on the licensee's analysis presented below:

1. Operation of the facility, in accordance with the proposed amendment, would not involve a significant increase in the probability or consequences of an accident previously analyzed because the equipment and functions addressed by the subject TS involve accident mitigation equipment which does not contribute to the probability of occurrence of accidents. The loss of voltage relay circuitry on a train basis provides an additional level of redundancy above that required to be single failure proof for the load shed function, i.e., it uses two redundant channels within each of two redundant trains. Since the trains are redundant and on a train basis perform their intended function, there is no significant increase in accident consequences.
2. Operation of the facility in accordance with the proposed amendment would not create the possibility of a new or different kind of accident from any accident previously evaluated because the redundant safety train circuits continue to perform their required safety function. No new equipment is being introduced, and the existing equipment does not participate in accident initiating sequences; therefore, no new accident can be created. No changes in equipment, systems or setpoints designed to prevent and/or mitigate accidents will be made. Also, no changes to the plant design bases are made. Therefore, the possibility of a new or different kind of accident from any accident previously evaluated is not created.
3. Operation of the facility, in accordance with the proposed amendment, would not involve a significant reduction in a margin of safety because the redundancy of the safety trains, the high level of reliability of the equipment, and the results obtained from previous tests and experience assure that the required safety function will be accomplished; therefore, there is no significant reduction in the margin of safety.

In addition, with respect to Criterion 1, the consequence of failure to test the breakers for load shedding of all vital equipment is bounded by the failure of one of the two redundant trains. Therefore, the staff finds that there is no significant increase in accident consequences.

The licensee's analysis demonstrates that the applicable criteria are met. Accordingly, the Commission makes this final determination that the amendment involves no significant hazards consideration.

6.0 FINDINGS OF EMERGENCY WARRANTING AN AMENDMENT WITHOUT NOTICE

The licensee's application for a TS change was timely. During a recent review September 14, 1991 of the electrical distribution system protective circuits, the licensee discovered that the surveillance testing performed on the LOV relay logic was not capable of differentiating between which of the two relays/channels per train would produce the desired grid separation and load shed. In addition, because of the way the test procedures had been written, the licensee could not verify shedding of each emergency bus load. The LCO, TS 3.0, would not provide a sufficient duration to perform the test while operating. As discussed in Section 2, Background, the licensee's action to permit plant operation and to address the regulatory and safety concerns since the identification of the issues has been timely and thorough.

The NRC staff agrees with the licensee that failure to grant the proposed TS change in a timely manner would result in requiring a shutdown to perform a surveillance. We also find that the licensee could not reasonably have avoided this situation, that the licensee has responded in a timely manner, and has not delayed its application to take advantage of the emergency license amendments provision of 10 CFR 50.91. Accordingly, the staff concludes that the licensee has satisfied the requirements of 10 CFR 50.91(a)(5), and that a valid emergency exists.

7.0 STATE CONSULTATION

In accordance with the Commission's regulations, the State of South Carolina official was notified of the proposed issuance of the amendment. The State official had no comments.

8.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes the surveillance requirements. The NRC staff has determined that the amendment involves 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 NRC staff has made a final determination that the amendment involves no significant hazards consideration. Accordingly, the amendment meets 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 amendment.

9.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: P. Kang

Date: September 27, 1991

AMENDMENT NO. 136 TO FACILITY OPERATING LICENSE NO. DPR-23 - ROBINSON,
UNIT NO. 2

Bucket File

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cc: Robinson Service List