

April 20, 1989

Docket No. 50-261

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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. 122 TO FACILITY OPERATING LICENSE NO. DPR-23 - H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2, REGARDING REACTOR TRIP BREAKER DESIGN MODIFICATIONS (TAC NO. 55373, 64474)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 122 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 Technical Specifications (TS) in response to your request dated January 12, 1987, as supplemented October 3, 1988 and April 4, 1989.

The amendment revises the TS by adding operability and surveillance testing requirements for the reactor trip and bypass breakers, diverse trip features and trip logic. The amendment complies with the guidance provided in the NRC Generic Letters 85-09 and 83-28, Item 4.3.

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

Sincerely,

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. 122 to DPR-23
- 2. Safety Evaluation

cc w/enclosures:
See next page

OFC	:LA:PD21:DRPR:PM:PD21:DRPR:D:PD21:DRPR	:	:	:	:
NAME	: PA [Signature] : RLo: [Signature] : EAdensam	:	:	:	:
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Carolina Power & Light Company

H. B. Robinson 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. 122
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 January 12, 1987, as supplemented October 3, 1988 and April 4, 1989, 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:

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(B) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 122, 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

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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: April 20, 1989

(ROB AMEND 55373/64474)

*See previous concurrence

OFC	:LA:PD21:DRPR:PM:PD21:DRPR:ICSB*	:OGC*	:D:PD21:DRPR	:	:
NAME	: PA Anderson	: RLo:jfw	: SNewberry	: RBachmann	: EAdensam
DATE	:4/19/89	:4/ /89	:4/11/89	:4/13/89	:4/19/89

ATTACHMENT TO LICENSE AMENDMENT NO. 122

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

3.10-8
3.10-8a
3.10-18
3.10-19
4.1-7
4.1-9
4.1-9a

Insert Pages

3.10-8
3.10-8a
3.10-18
3.10-19
4.1-7
4.1-9
4.1-9a

3.10.4 Rod Drop Time

3.10.4.1 The drop time of each control rod shall be not greater than 1.8 seconds at full flow and operating temperature from the beginning of rod motion to dashpot entry.

3.10.5 Reactor Trip Breakers

3.10.5.1 The reactor shall not be made critical unless the following conditions are met:

- a. Two reactor trip breakers are operable.
- b. Reactor trip bypass breakers are racked out or removed.
- c. Two trains of automatic trip logic are operable.

3.10.5.2 During power operation, the requirements of 3.10.5.1 may be modified to allow the following components to be inoperable. If the system is not restored to meet the requirements of 3.10.5.1, the reactor shall be placed in the hot shutdown condition utilizing normal operating procedures within the next 8 hours.

- a. One reactor trip breaker may be inoperable for up to 12 hours.
- b. One train of automatic trip logic may be inoperable for up to 12 hours.
- c. One reactor trip bypass breaker may be racked in and closed for up to 12 hours.

3.10.5.3 With one of the diverse trip features inoperable (shunt trip attachment/undervoltage trip attachment) on one of the reactor trip breakers, power operation may continue for up to 48 hours. If the

diverse trip feature is not restored to operable status within this time, the reactor shall be placed in the hot shutdown condition utilizing normal operating procedures within the next eight hours.

3.10.6 Inoperable Control Rods

3.10.6.1 A control rod shall be deemed inoperable if (a) the rod is misaligned by more than 15 inches with its bank, (b) if the rod cannot be moved by its drive mechanism, or (c) if its rod drop time is not met.

for each one percent of indicated tilt is required. Physics measurements have indicated that the core radial power peaking would not exceed a two-to-one relationship with the indicated tilt from the excore nuclear detector system for the worst rod misalignment.

In the event the tilt condition of 1.09 cannot be eliminated after 24 hours, the reactor power level will be reduced to the range required for low power physics testing. To avoid reset of a large number of protection setpoints, the power range nuclear instrumentation would be reset to cause an automatic reactor trip at 55 percent of allowed power. A reactor trip at this power has been selected to prevent, with margin, exceeding core safety limits even with a nine percent tilt condition. If a tilt ratio greater than 1.09 occurs which is not due to a misaligned rod, the reactor power shall be brought to a hot shutdown condition for investigation.

However, if the tilt condition can be identified as due to rod misalignment, operation can continue at a reduced power (2 percent for each one percent the tilt ratio exceeds 1.0) for the two-hour period necessary to correct the rod misalignment.

The specified rod drop time is consistent with safety analyses that have been performed.⁽¹⁾

Power to the control rod drive mechanism is supplied through duplicate series connected reactor trip circuit breakers. Operability requirements are applied to these breakers and their trip logic to assure that on proper coincidence of its trip logic the trip breakers will open initiating the required rapid reactivity insertion.

An inoperable rod imposes additional demands on the operator. The permissible number of inoperable control rods is limited to one in order to limit the magnitude of the operating burden, but such a failure would not prevent dropping of the operable rods upon reactor trip.

Normal reactor operation causes significant pellet cracking and fragmentation. Consequently, handling of irradiated fuel assemblies can result in relocation of these fragments against the cladding. Calculations show that high cladding stresses can occur if the reactor power increase is rapid during the subsequent startup.

The 72-hour period allows for stress relaxation of the clad before the ramp rate requirement is removed, thereby reducing the potential harmful effects of possible pellet or fragment relocation.

The 3 percent limit is imposed to minimize the effects of adverse cladding stresses resulting from part power operation for extended periods of time. The time period of 30 days is based upon the successful power ramp demonstrations performed on Zircaloy clad fuel in operating reactors, resulting in no cladding failures.

References

- (1) FSAR Section 15.0
- (2) FSAR Section 7.7
- (3) FSAR Section 15.4
- (4) FSAR Section 15.4
- (5) FSAR Section 15

TABLE 4.1-1 (Continued)

	<u>Channel Description</u>	<u>Check</u>	<u>Calibrate</u>	<u>Test</u>	<u>Remarks</u>
21.	Containment Sump Level	N.A.	R	N.A.	
22.	Turbine Trip Logic**	N.A.	N.A.	R	
23.	Accumulator Level and Pressure	S	R	N.A.	
24.	Steam Generator Pressure	S	R	N	
25.	Turbine First Stage Pressure	S	R	N	
26.	DELETED				
27.	Logic Channel Testing	N.A.	N.A.	N(1)	(1) During hot shutdown and power operations. When periods of reactor cold shutdown and refueling extend this interval beyond one month, the test shall be performed prior to startup.
28.	Turbine Overspeed Protection Trip Channel (Electrical)	N.A.	R	N	
29.	4 kv Frequency	N.A.	R	R	
30.	Reactor Trip Breakers	N.A.	N.A.	N(2)	(2) The reactor trip breaker trip actuating device operational test shall verify the operability of the UV trip attachment and the shunt trip attachment, individually.
31.	Overpressure Protection System	N.A.	R	N	

** Stop valve closure or low EH fluid pressure.

4.1-7

Amendment No. 83, 108, 122

TABLE 4.1-1 (Continued)

MINIMUM FREQUENCIES FOR CHECKS, CALIBRATIONS AND TEST OF INSTRUMENT CHANNELS

<u>Channel Description</u>	<u>Check</u>	<u>Calibrate</u>	<u>Test</u>	<u>Remarks</u>
b. Main Vent Stack				
High Range	D	R	Q	
Mid Range	D	R	Q	
c. Spent Fuel Pit Lower Level				
High Range	D	R	Q	
39. Steam/Feedwater Flow Mismatch	N.A.	R	M	
40. Low Steam Generator Water Level	N.A.	R	M	
41. CV Level (Wide Range) [†]	M	R	R	
42. CV Pressure (Wide Range) ^{††}	M	R	R	
43. CV Hydrogen Monitor ^{†††}	M	R	R	
44. CV High Range Radiation Monitor ^{††††}	M	R [‡]	R	
45. RCS High Point Vents	N.A.	N.A.	R	
46. Manual Reactor Trip	N.A.	N.A.	R(1)	(1) The manual reactor trip operational test shall verify the independent operability of the manual shunt trip circuit and the manual UV trip circuit on the reactor trip breakers. The test shall also verify the operability of the UV trip circuit on the bypass breakers.
47. Reactor Trip Bypass Breakers	N.A.	N.A.	M(3),R(4)	(3) Remote manual UV trip required only when placing the bypass breaker in service. (4) Perform UV trip from protection system.

Amendment No. 94, 122

TABLE 4.1-1 (Continued)

- ♦ Containment Water Level Monitor - NUREG 0737 Item II.F.1.5
 - ♦♦ Containment Pressure Monitor - NUREG-0737 Item II.F.1.4
 - ♦♦♦ Containment Hydrogen Monitor - NUREG-0737 Item II.F.1.6
 - ♦♦♦♦ Containment High-Range Radiation Monitor - NUREG-0737 Item II.F.1.3
 - ‡ Calibration performed in accordance with CP&L's letter dated April 28, 1982; S. R. Zimmerman to S. A. Varga.
-
- | | | | | | |
|-----|---|----------------------------|------|---|--|
| S | - | At least once per 12 hours | Q | - | At least once per 92 days |
| D | - | At least once per 24 hours | S/U | - | Prior to each reactor startup if not performed
in the previous seven (7) days |
| W | - | At least once per 7 days | R | - | At least once per 18 months |
| B/W | - | At least once per 14 days | N.A. | - | Not applicable |
| M | - | At least once per 31 days | | | |



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 122 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

The licensee, Carolina Power & Light Company, responded to the recommendations related to reactor trip breaker modifications contained in Generic Letters 83-28 and 85-09 in a response dated January 12, 1987. These Generic Letters requested the licensee to propose changes to the H. B. Robinson Steam Electric Plant, Unit No. 2, Technical Specifications (TS) that would address changes in the surveillance requirements made necessary by the installation of automatic actuation of the shunt trip attachments of the reactor trip breakers, as required by Generic Letter 83-28, Item 4.3. The original requested changes were clarified and modified by Generic Letter 85-09. The staff found the proposed TS changes acceptable, but noted that they were incomplete because they failed to include operability requirements for the reactor trip breakers and the automatic trip logic that were consistent with the recommendations of Generic Letter 85-09. The licensee responded with a submittal dated October 3, 1988 that addressed these concerns. The October 3, 1988 submittal was supplemented by a letter dated April 4, 1989, consisting of changes to clarify and eliminate the potential for confusion in the operability requirement statements.

2.0 EVALUATION

This amendment will impose new surveillance and operability testing requirements. The staff found the licensee's proposed changes that addressed the surveillance test requirements acceptable. The letter dated October 3, 1988 proposed the addition of Section 3.10.5 containing operability requirements for the reactor trip breakers, their diverse trip features and the automatic trip logic in response to staff's request. The staff reviewed these changes and communicated their concern with the wording of the proposed operability requirement for the diverse trip features in Section 3.10.5.3 and with the inclusion in proposed Section 3.10.5.4 of a proposal that would allow power operation to continue with "non-trip features" of the reactor trip breakers inoperable. The staff rejected this proposal because no limits were set on: (1) how many trip breakers could have such features inoperable at any one time, (2) how many such features would be allowed to be inoperable on any one reactor trip breaker, or (3) what period of time such features would be allowed to be inoperable. In addition, the staff believes that if parts of the breaker are inoperable, the continued ability of the breaker to perform its safety function is questionable. Further, the status of these features is addressed in the operability definition in Section 1.3 of the Technical Specifications. The licensee responded to these concerns by a letter dated April 4, 1989 which revised the wording of the operability requirement in Section 3.10.5.3

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and removed proposed Section 3.10.5.4. The staff finds the limiting conditions of operation related to the reactor trip breakers, as amended by the April 4, 1989 letter, to be acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment changed 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 to the surveillance requirements. The 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 off site; and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration, and there has been no public comment on such finding. Accordingly, this 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 this amendment.

4.0 CONCLUSION

The Commission made a proposed determination that the amendment as requested by the license in its letter dated January 12, 1987 involves no significant hazards consideration, which was published in the FEDERAL REGISTER (52 FR 5851) on February 26, 1987. When the license supplemented the proposed amendment by letter dated October 18, 1988, the Commission made another proposed determination that the amendment involves no significant hazards consideration, which was published in the FEDERAL REGISTER (53 FR 44249) on November 2, 1988. The licensee's letter dated April 4, 1989, consists of changes to clarify and eliminate the potential for confusion in the operability requirement statements and did not change the initial determination of no significant hazards consideration as published in the FEDERAL REGISTER. The staff has consulted with the State of North Carolina. No public comments or requests for hearing were received, and the State of North Carolina did not have any comments.

The staff 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, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: R. Lo
D. Lasher

Dated: April 20, 1989

AMENDMENT NO. 122 TO FACILITY OPERATING LICENSE NO. DPR-23 - ROBINSON, UNIT 2

Docket File

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