

April 14, 1995

Mr. C. S. Hinnant, Vice President
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant,
Unit No. 2
3581 West Entrance Road
Hartsville, South Carolina 29551-0790

SUBJECT: ISSUANCE OF AMENDMENT NO. 161 TO FACILITY OPERATING LICENSE NO. DPR-23 REGARDING INCREASE OF THE TRIP VOLTAGE SETTINGS OF DEGRADED GRID VOLTAGE RELAYS- H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2 (TAC NO. M90314)

Dear Mr. Hinnant:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 161 to Facility Operating License No. DPR-23 for the H. B. Robinson Steam Electric Plant, Unit No. 2. This amendment changes the Technical Specifications in response to your request dated August 23, 1994, as supplemented March 2, 1995.

The amendment increases the trip voltage settings of the degraded grid voltage relays which are shown in TS Table 3.5-1, Engineering Safety Feature System Initiation Instrument Setting Limits, Item 6b.

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)

Brenda L. Mozafari, Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-261

Enclosures:

1. Amendment No. 161 to DPR-23
2. Safety Evaluation

cc w/enclosures:
See next page

DOCUMENT NAME: G:\ROBINSON\ROB90314.AMD *Previously Concurred

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NAME	Dunnington	B.Mozafari	D.Matthews	C.Barth	
DATE	04/12/95	04/12/95	04/12/95	04/06/95	
COPY	Yes/No	Yes/No	Yes/No	Yes/No	

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

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Sincerely,

A handwritten signature in cursive script that reads "Brenda Mozafari".

Brenda L. Mozafari, Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

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Carolina Power & Light Company

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

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AMENDMENT NO. 161 TO FACILITY OPERATING LICENSE NO. DPR-23 - H. B. ROBINSON
STEAM ELECTRIC PLANT, UNIT NO. 2

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-261

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

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 161
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 August 23, 1994, as supplemented March 2, 1995, 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. 161, 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 and shall be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION



David B. Matthews, 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 14, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 161

FACILITY OPERATING LICENSE NO. DPR-23

DOCKET NO. 50-261

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

Remove Page

3.5-11

Insert Page

3.5-11

TABLE 3.5-1 (Continued)

ENGINEERED SAFETY FEATURE SYSTEM INITIATION INSTRUMENT SETTING LIMITS

<u>NO.</u>	<u>FUNCTIONAL UNIT</u>	<u>CHANNEL ACTION</u>	<u>SETTING LIMIT</u>
6. (Cont'd)	b. 480V Emerg. Bus Undervoltage (Degraded Voltage) Time Delay	Trip Normal Supply Breaker	430 Volts \pm 4 Volts 10.0 Second Delay \pm 0.5 sec.
7.	Containment Radioactivity High	Ventilation Isolation	The alarm is set with a method described in the ODCM.

-
- . Initiates also containment isolation (Phase A), feedwater line isolation and starting of all containment fans.
 - .. Initiates also containment isolation (Phase B).
 - ... Derived from equivalent WP measurements.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 161 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 August 23, 1994, as supplemented March 2, 1995, Carolina Power & Light Company (licensee) submitted a request for changes to the H. B. Robinson Steam Electric Plant, Unit No. 2, Technical Specification (TS). The requested changes would proposed that the Technical Specification (TS) for the degraded grid voltage (DGV) relay settings at H. B. Robinson Steam Electric Plant, Unit 2 (HBR2), be revised. The proposed amendment increases the trip voltage settings of the DGV relays which are shown as Item No. 6b, 480 V Emergency Bus Undervoltage (Degraded Voltage) Time Delay, in TS Table 3.5-1, under Engineering Safety Feature System Initiation Instrument Setting Limits. With the existing voltage settings, the safety loads on the emergency bus can operate at less than minimum required voltage for a short period by relying on the operator actions to increase the system voltage. On the basis of a new DGV relay setpoints study, the licensee determined that an amendment request to increase the voltage setpoints was necessary to ensure continuous operation of safety-related loads within their voltage ratings without the operator actions.

The licensee's August 23, 1994, submittal did not include the new DGV study calculations that established the basis for new trip voltage relay setpoints. In response to the NRC staff's request for additional information, the licensee, by letter dated March 2, 1995, submitted the DGV study EE107-CS-46, "Evaluation of Proposed Degraded Grid Voltage Relay Drop Out and Reset Setpoints for the H. B. Robinson Nuclear Plant." The calculations supported conclusions made by the licensee in the August 23, 1994, submittal and did not affect the NRC's determination of no significant hazards consideration.

The licensee plans to make this DGV setpoint modification during refueling outage 16, that is scheduled for April 1995.

2.0 EVALUATION

The purpose of the DGV relays or secondary level undervoltage protection system is to monitor the voltages of the emergency buses (E1 and E2) and trip the incoming circuit breakers to the emergency buses if the undervoltage condition stays below the settings (trip voltage and time delay) of the DGV relays. This is to prevent continuous operation of safety-related loads below the minimum voltages required for proper operation. With degraded offsite

power, the DGV relays initiate separation of the emergency buses from the offsite power source and load the buses onto respective emergency diesel generators. The trip voltage and time delay settings of the DGV relays at HBR2 are currently set to trip at 415 ± 4 volts with a time delay of 10.0 ± 0.5 second. These settings are based on contactor pickup voltage requirements at the motor control center (MCC) level which allows operation of continuous-duty motor loads at less than minimum voltage for short periods by relying on the operator actions to increase the system voltage.

The licensee recently performed a new setpoints study for DGV relays in accordance with the revised voltage criteria it had established. These criteria no longer credit the operator actions and will not allow safety equipment to operate at voltages that are below the minimum voltage required for proper operation, and for periods greater than the time delay setting of the DGV relays. Based on the revised criteria, the licensee performed new calculations to determine the minimum voltage necessary to maintain continuous operation of safety-related loads under accident and non-accident conditions, when the offsite power supply is at minimum anticipated grid voltage. The results of these calculations show that a higher voltage setting of 430 ± 4 volts is necessary to allow safety-related loads to operate continuously without damage.

The licensee's August 23, 1994, submittal did not include the new DGV study calculations that established the basis for new trip voltage relay setpoints. In response to the NRC staff's request for additional information, the licensee, by letter dated March 2, 1995, submitted the DGV study EE107-CS-46, "Evaluation of Proposed Degraded Grid Voltage Relay Drop Out and Reset Setpoints for the H. B. Robinson Nuclear Plant."

The NRC staff has reviewed the bases and assumptions used in EE107-CS-46, including the methods used by the licensee to determine the trip voltage and time delay settings for the DGV relays. To perform the voltage analyses for the DGV study, the licensee used a computer program called ASDOP to calculate the terminal voltages of the safety system loads during steady-state, motor-starting, and transient ride-through conditions. The NRC staff previously approved the use of the ASDOP program for calculating the voltages needed to set the DGV relays after the licensee verified the analytical techniques and assumptions used in the program by performing actual tests.

When the offsite power supply is at a minimum anticipated grid voltage of 113.7 kV in comparison to the nominal 115-kV switchyard voltage, the study shows the following:

- (1) Under accident conditions (i.e., maximum load conditions), adequate voltage will be available at the terminals of all safety-related motors that are started during the sequencing of loads.

- (2) Voltages at emergency buses and MCCs during transient conditions meet the bus/MCC transient ride-through voltage criteria and exceed the minimum required voltage criteria for safety-related contactors. Therefore, control circuit contactors have adequate voltage to operate as required, and safety-related motors that are running will not stall.
- (3) With the minimum expected 115-kV switchyard voltage (i.e., 113.7 kV), starting up large balance-of-plant (BOP) motors (e.g., reactor coolant pumps) or sequencing loads during a safety injection signal will not trip the DGV relays, the primary undervoltage relays (loss of voltage), or other protective devices (i.e., fuses or circuit breakers) supplying safety-related loads.
- (4) Even with the emergency bus voltage at 425.0 V, adequate steady-state voltage exists at the terminals of continuous-duty safety-related loads.
- (5) The DGV relays will not operate to trip the incoming breaker to the bus during starting of large BOP motors.
- (6) The time setting of DGV relays is within the response times for postulated accidents that are discussed in Chapter 15 of the Updated Final Safety Analysis Report.

The NRC staff finds that the new voltage settings of the DGV relays proposed by the licensee ensure adequate protection of safety system loads against sustained undervoltage conditions without relying on manual actions by the operator. In addition, the new setpoints for the DGV relays do not cause spurious separation of the safety system from the preferred offsite power source under accident and non-accident conditions. Therefore, the proposed DGV relays settings which are shown in Item No. 6b, 480 V Emergency Bus Undervoltage (Degraded Voltage) Time Delay, in TS Table 3.5-1, under Engineering Safety Feature System Initiation Instrument Setting Limits, are acceptable.

3.0 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.

4.0 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. 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 Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (60 FR 11692). 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.

5.0 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: April 16, 1995