August 1, 1996

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 29550

SUBJECT: ISSUANCE OF AMENDMENT NO. 171 TO FACILITY OPERATING LICENSE NO. DPR-23 REGARDING MAIN STEAM SAFETY VALVE TESTING AT THE H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2 (TAC NO. M94613)

Dear Mr. Hinnant:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 171 to Facility Operating License No. DPR-23 for the H. B. Robinson Steam Electric Plant, Unit No. 2 (HBR). This amendment changes the HBR Technical Specifications (TS) in response to your request dated January 29, 1996, as supplemented June 17, 1996.

The amendment revises Item 4 of the TS Table 4.1-3, "Frequencies for Equipment Tests," to change the frequency of main steam safety valve (MSSV) testing to one third of the MSSVs each refueling outage, consistent with the frequency specified in NUREG-1431, the improved "Standard Technical Specifications, Westinghouse Plants." In addition, the amendment adds the MSSV test acceptance requirements.

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. 171 to DPR-23
2. Safety Evaluation

cc w/enclosures:
See next page

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Carolina Power & Light Company

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

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AMENDMENT NO. 171 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. 171
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 29, 1996, as supplemented June 17, 1996, 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. 171 , 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

Eugene V. Imbro, 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: August 1, 1996

ATTACHMENT TO LICENSE AMENDMENT NO. 171

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	Insert Pages
4.1-4	4.1-4
-	4.1-4a
4.1-12	4.1-12
-	4.1-15

For a specified test interval W and an M out of N redundant system with identical and independent channels having a constant failure rate λ, the average availability A is given by:

$$A = \frac{W - Q\left(\frac{W}{N-M+2}\right)}{W} = 1 - \frac{N!}{(N-M+2)!\ (M-1)!}(\lambda W)^{N-M+1}$$

where A is defined as the fraction of time during which the system is functional, and Q is the probability of failure of such a system during a time interval W.

For a 2-out-of-3 system A = 0.9999968, assuming a channel failure rate, λ, equal to 2.5×10^{-6} hr^{-1} and a test interval, W, equal to 720 hrs.

This average availability of the 2-out-of-3 system is high, hence the test interval of one month is acceptable.

Because of their greater degree of redundancy, the 1/3 and 2/4 logic arrays provide an even greater measure of protection and are thereby acceptable for the same testing interval. Those items specified for monthly testing are associated with process components where other means of verification provide additional assurance that the channel is operable, thereby requiring less frequent testing.

MSSV's

This surveillance verifies the OPERABILITY of the MSSVs by the verification of each MSSV lift setpoint in accordance with the Inservice Testing Program. The ASME Code, Section XI (Ref. 3), requires that safety and relief valve tests be performed in accordance with ANSI/ASME OM-1 1981 (Ref. 4). According to Reference 4, the following tests are required:

a. Visual examination,

b. Seat tightness determination,

c. Setpoint pressure determination (lift setting), and

d. Compliance with owner's seat tightness criteria.

The ANSI/ASME Standard requires that all valves be tested every 5 years, and a minimum of 20% of the valves be tested every 24 months. The ASME Code specifies the activities and frequencies necessary to satisfy the requirements. Table 4.1-4 allows a ± 3% setpoint tolerance for OPERABILITY; however, the valves are reset to ± 1% during the Surveillance to allow for drift.

This Surveillance is modified by a Note that allows entry into and operation in Hot/No Load prior to performing the Surveillance. The MSSVs may be either bench tested or tested in situ at hot conditions using an assist device to simulate lift pressure. If the MSSVs are not tested at hot conditions, the lift setting pressure shall be corrected to ambient conditions of the valve at operating temperature and pressure.

Reference

(1) FSAR Section 7.2.2
(2) UFSAR Section 15.2
(3) ASME Boiler and Pressure Vessel Code, Section XI
(4) ANSI/ASME OM-1-1981
(5) UFSAR Section 10.3.2.2

TABLE 4.1-3

FREQUENCIES FOR EQUIPMENT TESTS

		Check	Frequency	Maximum Time Between Tests
1.	Control Rods	Rod drop times of all full length rods	Each refueling shutdown	NA
2.	Control Rod	Partial movement of all full length rods	Every 2 weeks during reactor critical operations	20 days
3.	Pressurizer Safety Valves	Set point	Each refueling shutdown	NA
4.	Main Steam Safety Valves	Verify each required MSSV lift setpoint per Table 4.1-4 in accordance with the Inservice Testing Program. Following testing, lift setting shall be within +/- 1%.	In accordance with the Inservice Testing Program	NA
5.	Containment Isolation Trip	Functioning	Each refueling shutdown	NA
6.	Refueling System Interlocks	Functioning	Prior to each refueling shutdown	NA
7.	Service Water System	Functioning	Each refueling shutdown	NA
8.	DELETED			
9.	Primary System Leakage	Evaluate	Daily when reactor coolant system is above cold shutdown condition	NA
10.	Diesel Fuel Supply	Fuel Inventory	Weekly	10 days
11.	DELETED			
12.	Turbine Steam Stop, Control, Reheat Stop, and Interceptor Valves	Closure	Quarterly during power operation and prior to startup	115 days

Table 4.1-4
Main Steam Safety Valve Lift Settings

VALVE NUMBER			LIFT SETTING (psig ± 3%)
STEAM GENERATOR			
A	B	C	
SV1-1A	SV1-1B	SV1-1C	1085
SV1-2A	SV1-2B	SV1-2C	1110
SV1-3A	SV1-3B	SV1-3C	1125
SV1-4A	SV1-4B	SV1-4C	1140

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 171 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 January 29, 1996, as supplemented June 17, 1996, the Carolina Power & Light Company (licensee) submitted a request for changes to the H. B. Robinson Steam Electric Plant, Unit No. 2 (HBR), Technical Specifications (TS). The requested changes would revise the TS Table 4.1-3, item 4 to change the frequency of main steam safety valve (MSSV) testing to one third of the MSSVs each refueling outage, consistent with the frequency specified in NUREG-1431, the improved "Standard Technical Specifications, Westinghouse Plants." In addition, the amendment would add the MSSV test acceptance requirements. The June 17, 1996, letter provided clarifying information that did not change the initial proposed no significant hazards consideration determination.

2.0 EVALUATION

Currently the 12 MSSVs, SV-1 through 4, Trains A, B, and C, are functionally tested at the beginning of each refueling outage at Hot/No load conditions. Neither the tolerance for the "as-left" setpoint nor the test acceptance criteria are addressed in the HBR TS.

The licensee is proposing to require that one-third of the MSSVs be tested on a refueling interval and that the acceptance criterion for the valve test be ±3 percent of the lift setpoint. If necessary, the valves would be adjusted to an "as-left" condition of ±1 percent of the setpoint as allowed by the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code. This proposed change is consistent with NUREG 1431, Revision 1, "Standard Technical Specifications - Westinghouse Plants."

The licensee indicated that it has considered the impact of the +3 percent MSSV setpoint drift on the Updated Final Safety Analysis Report (UFSAR) Chapter 15 Accident Analyses and UFSAR Section 5.2.2, Overpressure Protection. Those transients that required reanalysis were reanalyzed as part of the operating Cycle 17 safety analysis that was performed pursuant to 10 CFR 50.59. For the transients that result in pressurization of the primary and secondary system, the licensee determined that the maximum pressures remain below 110 percent of the design pressures for the primary and secondary systems. The specific transients that were reanalyzed are listed below:

15.1.3	Increase in Steam Flow
15.1.5	Steam Line Break

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15.2.2	Loss of External Load
15.2.7	Loss of Normal Feed
15.3.1	Complete Loss of Forced Reactor Coolant Flow
15.3.2	Reactor Coolant Pump Shaft Seizure (Locked Rotor)
15.4.1	Uncontrolled Rod Cluster Control Assembly (RCCA) Bank Withdrawal at Subcritical or Low Power Condition
15.4.2	Uncontrolled RCCA Bank Withdrawal
15.4.3	RCCA - Single Rod Withdrawal, Statically Misaligned, Dropped Rod/Bank
15.4.6	Chemical and Volume Control System Malfunction that Results in a Decrease in the Boron Concentration in the Reactor Coolant
15.4.7	Inadvertent Loading and Operation of Assembly in an Improper Position
15.4.8	Spectrum of RCCA Ejection Accidents
15.6.1	Inadvertent Opening of a Pressurizer Safety or Power Operated Relief Valve
15.6.2	Small Break Loss of Coolant Accident
15.6.5	Large Break Loss of Coolant Accidents - Fuel Damage Limits, Radiological Consequences

The licensee determined the following three events are bounded by previous analyses and that the MSSVs do not perform a mitigation function for these three transients. The remaining transients are bounded by other transients.

15.5.1	Inadvertent Operation ECCS during Power Operation
15.6.3	Radiological Consequences of Steam Generator Tube Rupture
15.7.3	Postulated Radioactive Releases Due to Liquid Tank Failure

The HBR limiting secondary pressure transient is the Loss of External Electrical Load Accident. The licensee reanalyzed two cases for this event, the RCS pressurization case and the Secondary Pressurization/Minimum Departure from Nucleate Boiling Ratio (DNBR) case. The licensee indicated that the resulting peak primary and secondary pressures, with the MSSV setpoint of +3 percent, are 2620 psia and 1200 psia, respectively. Both pressures are below the 110 percent design allowable pressure for the primary and secondary systems.

The licensee is proposing to change the HBR MSSV TS to conform with the improved Standard Technical Specifications for Westinghouse Plants, NUREG 1431. With these changes the licensee will add a test acceptance criteria, add a tolerance for the "as-left" setpoint, and modify the frequency of testing.

The licensee indicated that it has evaluated or reanalyzed the UFSAR Chapter 15 transient analyses and UFSAR Section 5.2.2 Overpressure Protection with the proposed MSSV setpoint of +3 percent. Based on the licensee's submittal, the transient analyses continue to meet the acceptance criteria of the peak secondary pressure remaining below 110 percent of the allowable design pressure when the MSSV setpoints are at +3 percent. Therefore, the staff finds the licensee's request 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 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 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 (61 FR 7545). 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: S. Brewer, SRXB

Date: August 1, 1996