February 8, 1978

Docket No.: 50-261

DISTRIBUTION:
Docket File
NRC PDR sent
L PDR sent
ORB#4 Rdg
VStello
KRGoller/TJCarter
RIngram
GZwetzig
Attorney, OELD
OI&E (5)
BJones (4)
BScharf (15)
JMcGough
BHarless
DEisenhut
ACRS (16)
OPA, Clare Miles
DRoss
Gray File
4 Extra Cys
TBAbernathy
JRBuchanan

Carolina Power & Light Company
ATTN: Mr. J. A. Jones
Senior Vice President
336 Fayetteville Street
Raleigh, North Carolina 27602

Gentlemen:

The Commission has issued the enclosed Amendment No. 30 to Facility Operating License No. DPR-23 for the H. B. Robinson Steam Electric Plant Unit No. 2. The amendment consists of changes to the Technical Specifications in response to certain of the requests contained in your letters of November 4, 1976 and January 4, 1977.

The amendment revises the Robinson-2 Technical Specifications to delete the requirement for hydrostatic testing of steam generator tubes and to impose more restrictive limits on allowable steam generator tube leakage.

Copies of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

Original Signed By:

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Enclosures:
1. Amendment No. 30
2. Safety Evaluation
3. Notice

cc w/enclosures: See next page

Subject to change in SE/Notice done 2/9/78

OFFICE	ORB#4:DOR	ORB#4:DOR	OELD	C-ORB#4:DOR		
SURNAME	RIngram	GZwetzig		RReid		
DATE	2/1/78	2/1/78	2/7/78	2/8/78		

NRC FORM 318 (9-76) NRCM 0240

☆ U.S. GOVERNMENT PRINTING OFFICE: 1976 — 626-624

February 7, 1978

Note to Gerald B. Zwetzig
Operating Reactors Branch #4
Office of NRR

ROBINSON - DELETION OF HYDROSTATIC TESTING OF STEAM GENERATOR TUBES

We have concurred in this amendment subject to the following changes to the Safety Evaluation which you proposed: Substitute the following for the first paragraph of Evaluation, p. 2.

> To meet the requirements of 10 CFR 50, Appendix G dealing with the fracture toughness of the reactor vessel, the licensee's revised technical specifications governing reactor coolant system pressure and temperature are such that the system pressures presently specified for hydrostatic testing of steam generator tubes cannot be imposed below a system temperature of 438°F. However, the temperatures presently specified for such testing are either 400°F or cold shutdown (<200°F). Accordingly, either the temperature and/or the pressures specified for hydrostatic testing must be modified or the requirement for hydrostatic testing must be deleted.

Auburn L. Mitchell
Attorney, Office of the
Executive Legal Director

cc w/enclosure(s):
G. F. Trowbridge, Esquire
Shaw, Pittman, Potts & Trowbridge
1800 M Street, N.W.
Washington, D. C. 20036

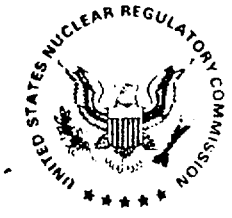
Hartsville Memorial Library
Home and Fifth Avenues
Hartsville, South Carolina 29550

Mr. McCuen Morrell, Chairman
Darlington County Board of Supervisors
County Courthouse
Darlington, South Carolina 29532

Chief, Energy Systems Analyses
Branch (AW-459)
Office of Radiation Programs
U. S. Environmental Protection Agency
Room 645, East Tower
401 M Street, S.W.
Washington, D. C. 20460

U. S. Environmental Protection Agency
Region V Office
ATTN: EIS COORDINATOR
245 Courtland Street, N.E.
Atlanta, Georgia 30308

cc w/enclosure(s) and incoming
dtd: 11/4/76 & 1/4/77
Office of Intergovernmental Relations
116 West Jones Street
Raleigh, North Carolina 27603



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. 30
License No. DPR-23

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The applications for amendment by Carolina Power & Light Company (the licensee) dated November 4, 1976 and January 4, 1977, comply 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 applications, 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. 30, are hereby incorporated in the license. The licensee 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

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: February 8, 1978

ATTACHMENT TO LICENSE AMENDMENT NO. 30

FACILITY OPERATING LICENSE NO. DPR-23

DOCKET NO. 50-261

Revise Appendix A Technical Specifications as follows:

Remove Pages	Insert Pages
3.1-15	3.1-15
4.7-1	4.7-1

The changed areas on the revised pages are shown by marginal lines.

3.1.5 LEAKAGE

3.1.5.1 If the primary system leakage exceeds 1 gpm and the source of leakage is not identified within 12 hours, the reactor shall be placed in the hot shutdown condition utilizing normal operating procedures. If the source of leakage exceeds 1 gpm and is not identified within 24 hours, the reactor shall be placed in the cold shutdown condition utilizing normal operating procedures.

3.1.5.2 If the sources of leakage have been identified and it is evaluated that continued operation is safe, operation of the reactor with a total leakage rate not exceeding 10 gpm shall be permitted. If leakage exceeds 10 gpm, the reactor shall be placed in the hot shutdown condition within 12 hours utilizing normal operating procedures. If the leakage exceeds 10 gpm for 24 hours, the reactor shall be placed in the cold shutdown condition utilizing normal operating procedures.

3.1.5.3 If the leakage is determined to be primary to secondary steam generator leakage in excess of 0.35 gpm in any steam generator, or in excess of 1 gpm total for all three steam generators, the reactor shall be shutdown and the plant placed in the cold shutdown condition utilizing normal procedures within 30 hours after detection.

Basis:

Leakage from the Reactor Coolant System is collected in the containment or by the other closed systems. These closed systems are: the Steam and Feedwater System, the Waste Disposal System, and the Component Cooling System. Assuming the existence of the maximum allowable activity in the reactor coolant, the rate of 1 gpm unidentified leakage is a conservative limit on what is allowable before the guidelines of 10 CFR Part 20 would be exceeded. This is shown as follows: If the reactor coolant activity is $50/\bar{E}$ uCi/cc ($\bar{E}$ = average beta plus gamma energy per disintegration in Mev) and 1 gpm of leakage is assumed to be discharged through the air ejector, the yearly whole body dose resulting from this activity at the site boundary, using an annual average $X/Q = 2.00 \times 10^{-5}$ sec/m^3 is about the 10 CFR Part 20 guideline of 0.5 R/yr[1,2].

With the limiting reactor coolant activity and assuming initiation of 1 gpm leak from the Reactor Coolant System to the Component Cooling System, the radiation monitor in the component cooling pump inlet

4.7 SECONDARY STEAM AND POWER CONVERSION SYSTEM

Applicability

Applies to periodic testing of secondary system components and surveillance of secondary coolant.

Objective

To verify the ability of secondary system components to function as required and to prevent system degradation.

Specification

4.7.1 The main steam stop valves shall be tested at each refueling interval or each 15 ± 3 months, whichever occurs first. Closure time of five seconds or less shall be verified. The valves are tested under no flow and at no load conditions.

Basis

The main steam stop valves serve to limit an excessive Reactor Coolant System cooldown rate and resultant reactivity insertion following a main steam break incident. Their ability to close upon signal should be verified at each scheduled refueling shutdown. A closure time of five seconds was selected as being consistent with expected response time for instrumentation as detailed in the steam line break incident analysis.

References

FSAR - Section 10.4
FSAR - Section 14.2.5

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 30 TO FACILITY OPERATING LICENSE NO. DPR-23

CAROLINA POWER AND LIGHT COMPANY

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

DOCKET NO. 50-261

Introduction

By letter dated January 4, 1977, Carolina Power and Light Company (the licensee) requested amendment of Facility Operating License No. DPR-23 for the H. B. Robinson Steam Electric Plant, Unit No. 2 (Robinson-2). One of the two revisions requested by this letter dealt with adoption of new pressure-temperature limits during reactor coolant system heatup and cooldown. This revision was authorized by our letter to the licensee dated February 11, 1977. The other revision, which has not been previously addressed, would delete the technical specification requirement for periodic hydrostatic testing of the steam generator tubes.

By letter dated November 4, 1976, the licensee had made a previous request for amendment of the Robinson-2 Technical Specifications. This change would impose more restrictive limits on allowable steam generator tube leakage and specify requirements for steam generator tube inspection and plugging in general conformance with model technical specifications developed by the NRC staff. With respect to this submittal, this evaluation deals only with the more restrictive limits on allowable steam generator tube leakage.

Background

The need for deletion or amendment of the Robinson-2 Technical Specifications relating to periodic hydrostatic testing of steam generator tubes arises from revised pressure-temperature limits applicable to the reactor coolant system during heatup and cooldown. The revised limits, which were required by the Commission's regulations and implemented by our letter to the licensee dated February 11, 1977, are sufficiently more restrictive than the previous pressure-temperature limits as to preclude performance of the hydrostatic test of steam generator tubes as presently defined in Section 4.7.2 of the Robinson-2 Technical Specifications. The hydrostatic test procedure must therefore either be deleted, as requested by the licensee, or modified to be compatible with the current pressure-temperature limits.

On the general subject of steam generator tube surveillance, it is noted that the NRC staff has developed model technical specifications for allowable steam generator tube leakage and for steam generator tube inspection and plugging. It is further noted that the inspection methods called for in the model technical specifications do not utilize hydrostatic testing. By letter dated November 4, 1976, the licensee requested amendment of the Robinson-2 Technical Specifications to incorporate specifications for steam generator tube leakage, inspection and plugging in general conformance with the NRC staff's model. Because of differences between the licensee's proposed tube plugging criteria and those of the NRC staff, and the licensee's effort to justify their criteria, our review of the tube inspection and plugging portions of the submittal is not yet complete. We anticipate resolution of this matter in the near future and expect to include acceptable specifications for steam generator tube inspection and plugging in the Robinson-2 Technical Specifications during the next few months. However, because the licensee's proposed technical specifications with respect to allowable steam generator tube leakage are in conformance with the NRC staff's position on this matter, we are able to implement this portion of the licensee's November 4, 1976 submittal at this time.

Evaluation

To meet the requirements of 10 CFR 50, Appendix G dealing with the fracture toughness of the reactor vessel, the licensee's revised technical specifications governing reactor coolant system pressure and temperature are such that the system pressures presently specified for hydrostatic testing of steam generator tubes cannot be imposed below a system temperature of 438°F. However, the temperatures presently specified for such testing are either 400°F or cold shutdown (<200°F). Accordingly, either the temperature and/or the pressures specified for hydrostatic testing must be modified or the requirement for hydrostatic testing must be deleted.

The requirement for hydrostatic testing of the steam generator tubes at Robinson-2 was imposed by the NRC staff approximately four (4) years ago. The bases at that time were: (1) caustic stress corrosion tube degradation had occurred, (2) indications of collapsed fuel clad, (3) no technical specification for any surveillance of the capability of fuel clad or steam generator tubes to withstand the effects of a steam

line break, and (4) no NRC staff position on steam generator tube surveillance, leakage rate limits, plugging criteria, or controls on secondary water chemistry to minimize further caustic stress corrosion cracking. Robinson-2 is the only PWR facility that has a technical specification for hydrostatic testing of steam generator tubes. Although the temperature for hydrostatic testing of steam generator tubes could be raised to 440°F, we concur with the licensee that such testing is not necessary to ensure steam generator tube integrity for the following reasons:

1. During the past four (4) years, a low rate of wastage has been the major type of tube degradation at Robinson-2,

2. Robinson-2 has maintained a 2.6 - 2.3 Na/PO_4 ratio in the secondary coolant since 1972 and no tube degradation from caustic stress corrosion cracking has been detected during inservice inspections,

3. Periodic inservice inspections, conducted in accordance with Regulatory Guide 1.83, have detected severely degraded tubes before any leakage occurred,

4. The plugging criteria at Robinson-2 have taken severely degraded tubes out of service before they could leak during normal operation or fail in the event of a postulated accident,

5. Pressure testing of the entire reactor coolant system, including steam generator tubes, under conditions consistent with pressure-temperature limits is required by Specification 4.3.1, and

6. The technical specifications proposed by the licensee for steam generator leakage call for plant shutdown within 30 hours following discovery of steam generator leakage in excess of 0.35 gpm per steam generator or 1 gpm total. These provisions, which conform with the NRC staff position in this area, assure that if small quantities of leakage were to occur, the plant would be promptly shutdown. Other provisions of the technical specifications would require prompt notification of the NRC. With this notification, the NRC staff could verify that appropriate inspections and repairs were completed prior to permitting resumption of operation.

In addition to the above reasons, we conclude that the unique requirement for hydrostatic testing of steam generator tubes at Robinson-2 has not been a beneficial technique for the detection of steam generator tube degradation. We also conclude that the requirements of Section XI, Appendix IV, Summer 1976 addendum of the ASME Code, Regulatory Guide 1.83, and Regulatory Guide 1.121 will provide adequate assurance of steam generator tube integrity at Robinson-2.

Based on the foregoing considerations, we conclude that, when combined with adoption of revised technical specifications governing steam generator tube leakage, the deletion of the requirement for hydrostatic testing of steam generator tubes is acceptable.

Environmental Consideration

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) 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.

Dated: February 8, 1978

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-261

CAROLINA POWER & LIGHT COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 30 to Facility Operating License No. DPR-23, issued to Carolina Power & Light Company (the licensee), which revised Technical Specifications for operation of the H. B. Robinson Steam Electric Plant Unit No. 2 (the facility) located in Darlington County, Hartsville, South Carolina. The amendment is effective as of the date of its issuance.

This amendment revises the Robinson-2 Technical Specifications to delete the requirement for hydrostatic testing of steam generator tubes and to impose more restrictive limits on allowable generator tube leakage.

Tne applications for the amendment comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.

The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of this amendment.

For further details with respect to this action, see (1) the applications for amendment dated November 4, 1976 and January 4, 1977, (2) Amendment No. 30 to License No. DPR-23, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C. and at the Hartsville Memorial Library, Home and Fifth Avenues, Hartsville, South Carolina. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland, this 8th day of February 1978.

FOR THE NUCLEAR REGULATORY COMMISSION

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors