

April 27, 1998

Mr. C. S. Hinnant, Vice President
Carolina Power & Light Company
Brunswick Steam Electric Plant
Post Office Box 10429
Southport, North Carolina 28461

SUBJECT: ISSUANCE OF AMENDMENT NO. 193 TO FACILITY OPERATING LICENSE NO. DPR-71 AND AMENDMENT NO. 224 TO FACILITY OPERATING LICENSE NO. DPR-62 REVISING TECHNICAL SPECIFICATION (TS) DESCRIPTION OF THE CONTROL ROD ASSEMBLIES - BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2 (TAC NOS. MA0156 AND MA0157)

Dear Mr. Hinnant:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 193 to Facility Operating License No. DPR-71 and Amendment No. 224 to Facility Operating License No. DPR-62 for Brunswick Steam Electric Plant, Units 1 and 2. The amendments consist of changes to the Technical Specifications (TS) in response to your application dated October 29, 1997, as supplemented by your letters dated January 28 and April 20, 1998.

The amendments update the TS description of Control Rod Assemblies to allow for boron carbide or hafnium absorber materials as approved by the NRC staff.

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

Sincerely,

Original signed by:

David C. Trimble, Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-325
and 50-324

Enclosures:

1. Amendment No. 193 to License No. DPR-71
2. Amendment No. 224 to License No. DPR-62
3. Safety Evaluation

cc w/enclosures: See next page

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4/27/98	4/21/98	4/23/98	4/27/98	
Yes/No	Yes/No	Yes/No	Yes/No	

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Mr. C. S. Hinnant
Carolina Power & Light Company

Brunswick Steam Electric Plant
Units 1 and 2

cc:

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

CAROLINA POWER & LIGHT COMPANY, et al.

DOCKET NO. 50-325

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 193
License No. DPR-71

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment filed by Carolina Power & Light Company (the licensee), dated October 29, 1997, as supplemented by letters dated January 28 and April 20, 1998, 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 2.C.(2) of Facility Operating License No. DPR-71 is hereby amended to read as follows:

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(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 193 , 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 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Pao-Tsin Kuo, Acting 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 27, 1998

ATTACHMENT TO LICENSE AMENDMENT NO. 193

FACILITY OPERATING LICENSE NO. DPR-71

DOCKET NO. 50-325

Replace the following page of the Appendix A Technical Specifications with the enclosed page.
The revised area is indicated by a marginal line.

Remove Page

Insert Page

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5-4

DESIGN FEATURES

5.3 REACTOR CORE

CONTROL ROD ASSEMBLIES

5.3.2 The reactor core shall contain 137 cruciform shaped control rod assemblies. The control material shall be boron carbide or hafnium absorber material as approved by the NRC.

5.4 REACTOR COOLANT SYSTEM

DESIGN PRESSURE AND TEMPERATURE

5.4.1 The nuclear boiler and reactor recirculation system is designed and shall be maintained:

- a. In accordance with the code requirements specified in Section 4.2 of the FSAR, with allowance for normal degradation pursuant to the applicable Surveillance Requirements.
- b. For a pressure of 1250 psig, and
- c. For a temperature of 575°F.

VOLUME

5.4.2 The total water and steam volume of the reactor vessel and recirculation system is approximately 18,670 cubic feet.

5.5 METEOROLOGICAL TOWER LOCATION

5.5.1 The meteorological tower shall be located as shown in Figure 5.1.1-1.



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

CAROLINA POWER & LIGHT COMPANY, et al.

DOCKET NO. 50-324

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 224
License No. DPR-62

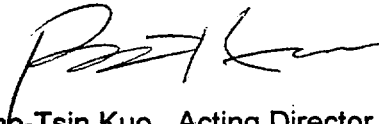
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment filed by Carolina Power & Light Company (the licensee), dated October 29, 1997, as supplemented by letters dated January 28 and April 20, 1998, complies with the standards and requirements of the 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 2.C.(2) of Facility Operating License No. DPR-62 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 224 , 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 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Pao-Tsin Kuo, Acting 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 27, 1998

ATTACHMENT TO LICENSE AMENDMENT NO. 224

FACILITY OPERATING LICENSE NO. DPR-62

DOCKET NO. 50-324

Replace the following page of Appendix A Technical Specifications with the enclosed page.
The revised area is indicated by a marginal line.

Remove Page

Insert Page

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DESIGN FEATURES

5.3 REACTOR CORE

CONTROL ROD ASSEMBLIES

5.3.2 The reactor core shall contain 137 cruciform shaped control rod assemblies. The control material shall be boron carbide or hafnium absorber material as approved by the NRC.

5.4 REACTOR COOLANT SYSTEM

DESIGN PRESSURE AND TEMPERATURE

5.4.1 The nuclear boiler and reactor recirculation system is designed and shall be maintained:

- a. In accordance with the code requirements specified in Section 4.2 of the FSAR, with allowance for normal degradation pursuant to the applicable Surveillance Requirements,
- b. For a pressure of 1250 psig, and
- c. For a temperature of 575°F.

VOLUME

5.4.2 The total water and steam volume of the reactor vessel and recirculation system is approximately 18,670 cubic feet.

5.5 METEOROLOGICAL TOWER LOCATION

5.5.1 The meteorological tower shall be located as shown in Figure 5.1.1-1.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 193 TO FACILITY OPERATING LICENSE NO. DPR-71

AND AMENDMENT NO. 224 TO FACILITY OPERATING LICENSE NO. DPR-62

CAROLINA POWER & LIGHT COMPANY

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2

DOCKET NOS. 50-325 AND 50-324

1.0 INTRODUCTION

In its letter of October 29, 1997, supplemented by letters dated January 28 and April 20, 1998, Carolina Power & Light Company (CP&L), the licensee for Brunswick Steam Electric Plant (BSEP) Units 1 & 2, submitted proposed changes to the Technical Specifications (TS). The changes would update the TS description of control rod assemblies to allow for boron carbide and hafnium absorber materials. The revised TS section is consistent with NUREG-1433, "Standard Technical Specifications." The licensee has also restricted the use of control rod assembly absorber materials to those approved by the NRC staff.

2.0 DISCUSSION AND EVALUATION

TS 5.3.2, Control Rod Assemblies, provides a description of the control rod assemblies in the reactor core. The proposed TS change is being requested to support the replacement of a portion of the BSEP-1 control rod assemblies with a different design than currently used. The control rods currently installed in the BSEP reactors were designed and fabricated by General Electric (GE). Three distinct types of GE control rod assemblies are currently used in BSEP-1&2. The original equipment type is a control rod assembly containing only boron carbide (B_4C) absorber tubes. The second type is a hybrid control rod assembly which uses boron carbide absorber tubes and three solid hafnium rods in the outside edge of each wing. The third type is an advanced hybrid control rod assembly which uses a combination of boron carbide absorber tubes, solid hafnium strips as replacements for select boron carbide absorber tubes, and a hafnium absorber plate at the top of each cruciform wing.

During the next BSEP-1 refueling outage, CP&L is planning to install the model CR82M-1 control rod assembly manufactured by Asea Brown Boveri (ABB). By letter dated February 20, 1986, the staff accepted Licensing Topical Report (LTR) TR-UR-85-225, "ASEA-ATOM Control Blades for U.S. BWRs." One of the control rod assembly designs covered by LTR TR-UR-85-

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225 is designated as "Type-4." The Model CR 82M-1 control rod assemblies differ from the Type 4 design in three ways:

- The model ABB CR82M-1 assemblies use 316L stainless steel wing material, rather than 304L stainless steel. The use of 316L stainless steel will not affect any physical arrangement or orientation of any system. The change will provide equivalent or better physical properties, including increased resistance to cracking. This is acceptable to the NRC staff.
- Cobalt content is reduced in the ABB Model CR 82M-1 compared to the Type 4 model. This change provides a reduction in the gamma radiation source term, and is acceptable to the NRC staff.
- The nuclear exposure life limit of a control rod assembly is defined as a 10 percent reduction in cold rod worth, relative to the initial worth of an original equipment blade. Control rod blade segment neutron exposure is tracked by the on-line core monitoring system (CMS) computer in terms of integrated neutron flux. By convention, the integrated segment flux is expressed in units of 10^{21} neutrons per square centimeter (snvt). The limiting lifetime (10% worth reduction) for the original GE control rod assemblies corresponded to approximately 2.5 snvt. The nuclear exposure lifetime of the ABB CR82M-1 control rod assembly (10% worth reduction relative to the initial worth of the original GE assembly) corresponds to 5.1 snvt, as tracked by the CMS. This is due both to a higher initial B_4C loading, and the fact that the hafnium worth remains relatively constant. Since the control rod worth limit is equivalent, this is acceptable to the NRC staff.

In addition, the revised TS section is consistent with NUREG-1433, "Standard Technical Specifications." The licensee has stated that shutdown margin is increased slightly with the Model CR 82M-1 assembly (a conservative change). The licensee is also required by the TS to use only previously approved control rod materials. Therefore, the changes are acceptable.

3.0 STATE CONSULTATION

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

4.0 ENVIRONMENTAL CONSIDERATION

These amendments involve a change in the 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 amendments involve 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 amendments involve no significant hazards consideration, and there has been no public comment on such finding (62 FR 66137). Accordingly, the amendments meet 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 amendments.

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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: G.Golub, NRR/DSSA

Date: April 27, 1998

AMENDMENT NO. 193 TO FACILITY OPERATING LICENSE NO. DPR-71 - BRUNSWICK,
UNIT 1 AND AMENDMENT NO. 224 TO FACILITY OPERATING LICENSE NO. DPR-62 -
BRUNSWICK, UNIT 2

DISTRIBUTION:

Docket File

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PDII-1 Reading File

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