

July 18, 1991

Docket No. 50-324

DISTRIBUTION
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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. 184 TO FACILITY OPERATING LICENSE
NO. DPR-62 REGARDING MINIMUM CRITICAL POWER RATIO SAFETY LIMIT
- BRUNSWICK STEAM ELECTRIC PLANT, UNIT 2, (TAC NO. 80361)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 184 to Facility Operating License No. DPR-62 for the Brunswick Steam Electric Plant, Unit 2. The amendment changes to the Technical Specifications (TS) in response to your submittal dated April 23, 1991, as supplemented July 9, 1991.

The amendment revises the TS to change the minimum critical power ratio safety limit from 1.06 to 1.07. The change is necessary because a new fuel type (GEBx8NB-3) is being added to the core.

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

Sincerely,

Original signed by;

Ngoc B. Le, Project Manager
Project Directorate II-1
Division of Reactor Project - I/II
Office of Nuclear Reactor Regulation

Enclosures:

- Amendment No. 184 to License No. DPR-62
- Safety Evaluation

cc w/enclosures:
See next page

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*See previous concurrence

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Mr. L. W. Eury
Carolina Power & Light Company

Brunswick Steam Electric Plant
Units 1 and 2

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

CAROLINA POWER & LIGHT COMPANY, et al.

DOCKET NO. 50-324

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 184
License No. DPR-62

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Carolina Power & Light Company (the licensee), dated April 23, 1991, as supplemented July 9, 1991, 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:

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(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 184, 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 of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



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: July 18, 1991

ATTACHMENT TO LICENSE AMENDMENT NO. 184

FACILITY OPERATING LICENSE NO. DPR-62

DOCKET NO. 50-324

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

Remove Pages

2-1

5-1

Insert Pages

2-1

5-1

2.0 SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS

2.1 SAFETY LIMITS

THERMAL POWER (Low Pressure or Low Flow)

2.1.1 THERMAL POWER shall not exceed 25% of RATED THERMAL POWER with the reactor vessel steam dome pressure less than 800 psia or core flow less than 10% of rated flow.

APPLICABILITY: CONDITIONS 1 and 2.

ACTION:

With THERMAL POWER exceeding 25% of RATED THERMAL POWER and the reactor vessel steam dome pressure less than 800 psia or core flow less than 10% of rated flow, be in at least HOT SHUTDOWN within 2 hours.

THERMAL POWER (High Pressure and High Flow)

2.1.2 The MINIMUM CRITICAL POWER RATIO (MCPR) shall not be less than 1.07 with the reactor vessel steam dome pressure greater than 800 psia and core flow greater than 10% of rated flow.

APPLICABILITY: CONDITIONS 1 and 2.

ACTION:

With MCPR less than 1.07 and the reactor vessel steam dome pressure greater than 800 psia and core flow greater than 10% of rated flow, be in at least HOT SHUTDOWN within 2 hours.

REACTOR COOLANT SYSTEM PRESSURE

2.1.3 The reactor coolant system pressure, as measured in the reactor vessel steam dome, shall not exceed 1325 psig.

APPLICABILITY: CONDITIONS 1, 2, 3, and 4.

ACTION:

With the reactor coolant system pressure, as measured in the reactor vessel steam dome, above 1325 psig, be in at least HOT SHUTDOWN with reactor coolant system pressure \leq 1325 psig within 2 hours.

5.0 DESIGN FEATURES

5.1 SITE

EXCLUSION AREA

5.1.1 The exclusion area shall be as shown in Figure 5.1.1-1.

LOW POPULATION ZONE

5.1.2 The low population zone shall be as shown in Figure 5.1.2-1.

SITE BOUNDARY

5.1.3 The SITE BOUNDARY shall be as shown in Figure 5.1.3-1. For the purpose of effluent release calculations, the boundary for atmospheric releases is the SITE BOUNDARY and the boundary for liquid releases is the SITE BOUNDARY prior to dilution in the Atlantic Ocean.

5.2 CONTAINMENT

CONFIGURATION

5.2.1 The PRIMARY CONTAINMENT is a steel-lined, reinforced concrete structure composed of a series of vertical right cylinders and truncated cones which form a drywell. This drywell is attached to a suppression chamber through a series of vents. The suppression chamber is a concrete, steel-lined pressure vessel in the shape of a torus. The primary containment has a minimum free air volume of 288,000 cubic feet.

DESIGN TEMPERATURE AND PRESSURE

5.2.2 The primary containment is designed and shall be maintained for:

- a. Maximum internal pressure 62 psig.
- b. Maximum internal temperature: drywell 300°F
suppression chamber 200°F
- c. Maximum external pressure 2 psig.

5.3 REACTOR CORE

FUEL ASSEMBLIES

5.3.1 The reactor core shall contain 560 fuel assemblies limited to the following fuel types: BP8x8R, GE8x8EB, and GE8x8NB-3.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 184 TO FACILITY OPERATING LICENSE NO. DPR-62
CAROLINA POWER & LIGHT COMPANY
BRUNSWICK STEAM ELECTRIC PLANT, UNIT 2
DOCKET NO. 50-324

1.0 INTRODUCTION

By letter dated April 23, 1991, as supplemented July 9, 1991, Carolina Power & Light Company (licensee) submitted a request for Technical Specifications (TS) changes for Brunswick Steam Electric Plant (Brunswick), Unit 2, TS for Cycle 10. The Cycle 10 reload core will be limited to fuel types BP8x8R, GE8x8EB, GE8x8NB, and GE8x8NB-3 of which the type GE8x8NB-3 is a new fuel type. The GE8x8NB-3 fuel was approved for reload in Amendment 21 to GESTAR-II (NEDE-24011-P-A). Due to the use of new fuel GE8x8NB-3, the licensee recalculated the minimum critical power ratio (MCPR) safety limit and proposed a change in the TS. The July 9, 1991, letter provided updated TS pages and did not change the initial determination of no significant hazards consideration as published in the Federal Register.

2.0 EVALUATION OF TECHNICAL SPECIFICATION CHANGES

(1) Section 2.1.2 THERMAL POWER

The MCPR safety limit for Cycle 10 with the new GE8x8NB-3 fuel type is changed from 1.06 to 1.07. The new MCPR limit is based on an approved methodology described in Amendment 21 to NEDE-24011-P-A which was approved by the staff's letter to the General Electric Company dated March 17, 1989. The degree of conservatism associated with the new MCPR limit is the same as that of the old MCPR limit, i.e., there is an adequate margin to assure that more than 99.9 percent of the fuel rods in the core will not experience boiling transition during normal operation and anticipated operational occurrences.

Based on the approved methodology and adequate conservatism, the staff concludes that the new MCPR limit of 1.07 is acceptable for use in Cycle 10.

(2) 5.3.1 FUEL ASSEMBLIES

The fuel types in the Cycle 10 reload core are BP8x8R, GE8x8EB, GE8x8NB, and GE8x8NB-3. The fuel types BP8x8R and GE8x8EB, formerly named GE8 and GE8x8NB, have been previously approved for use in the Cycle 9 core. The new fuel type GE8x8NB-3 was included in the previously approved Amendment 21 to NEDE-24011-P-A. The staff thus concludes that the four fuel types BP8x8R, GE8x8EB, GE8x8NB, and GE8x8NB-3 are acceptable for use in Cycle 10.

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 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 (56 FR 24206). 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 Contributors: S. Wu
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Date: July 18, 1991

AMENDMENT NO. 184 TO FACILITY OPERATING LICENSE NO. DPR-62 - BRUNSWICK, UNIT 2

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