Docket No. 50-324

November 8, 1989

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. 168 TO FACILITY OPERATING LICENSE NO. DPR-62 - BRUNSWICK STEAM ELECTRIC PLANT, UNIT 2, REGARDING CHANGING THE MINIMUM CRITICAL POWER RATIO SAFETY LIMIT (TAC NO. 73391)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 168 to Facility Operating License No. DPR-62 for the Brunswick Steam Electric Plant, Unit 2. The amendment consists of changes to the Technical Specifications in response to your submittal dated June 9, 1989.

The amendment will change the Minimum Critical Power Ratio safety limit from 1.04 to 1.06. The change is necessary because a new fuel type (GE8x8NB) is being added to the core. The amendment will also specify the fuel types located in the core for the upcoming cycle. Fuel type GE8x8NB will be added and fuel types 8x8R and P8x8R will be deleted. Fuel type GE8 will be renamed as fuel type GE8x8EB.

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:

E. G. Tourigny, Senior Project Manager
Project Directorate II-1
Division of Reactor Project - I/II
Office of Nuclear Reactor Regulation

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Enclosures:
1. Amendment No. 168 to License No. DPR-62
2. Safety Evaluation

cc w/enclosures:
See next page

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OFC	LA:PD21:DRPR	PM:PD21:DRPR	D:PD21:DRPR			
NAME	PAnderson	ETourigny	EAdensam			
DATE	10/1 /89	10/ / /89	10/ /89			

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

Brunswick Steam Electric Plant
Units 1 and 2

cc:

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Project Manager
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Southport, North Carolina 28461

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Mr. Dayne H. Brown, Chief
Radiation Protection Branch
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N. C. Department of Human Resources
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Mr. J. L. Harness
Plant General Manager
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Mr. Robert P. Gruber
Executive Director
Public Staff - NCUC
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Raleigh, North Carolina 27626-0520

AMENDMENT NO. 168 TO FACILITY OPERATING LICENSE NO. DPR-62 - BRUNSWICK, UNIT 2

Docket File
NRC PDR
Local PDR
PDII-1 Reading
S. Varga (14E4)
G. Lainas
E. Adensam
P. Anderson
E. Tourigny
N. Le
L. Spessard (MNBB 3701)
OGC
D. Hagan (MNBB 3302)
E. Jordan (MNBB 3302)
T. Meeks (4) (P1-137)
W. Jones (P-130A)
J. Calvo (11D3)
S. Wu (8-E-23)
ACRS (10)
GPA/PA
ARM/LFMB

cc: Licensee/Applicant Service List

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. 168
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 June 9, 1989, 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. 168, 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

Original Signed By:

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: November 8, 1989

Document Name: Brunswick 2 Amend 73391

OFC	LA:DRP:PD21	PM:DRP:PD21	OGC	D:DRP:PD21			
NAME	PAnderson	ELourigny		EAdensam			
DATE	10/16/89	10/17/89	10/25/89	10/ 8/89			

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ATTACHMENT TO LICENSE AMENDMENT NO. 168

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	Insert Pages
2-1	2-1
5-1	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 1.06 with the reactor vessel steam dome pressure greater than 800 psia and core flow greater than 10% of rated flow.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2

ACTION:

With MCPR less than 1.06 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.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 168 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 June 9, 1989 from A.B. Cutter (CP&L) to NRC, the licensee submitted a request for the Technical Specification changes for Brunswick Steam Electric Plant (Brunswick), Unit 2, for Cycle 9. The Cycle 9 reload core will consist of three types of GE fuel BP8x8R, GE8x8EB, and GE8x8NB, of which the type GE8x8NB is a new fuel type. The GE8x8NB fuel was approved for reload in Amendment 18 to GESTAR-II (NEDE-24011-P-A). Due to the use of new fuel GE8x8NB, the licensee recalculates the minimum critical power ratio (MCPR) safety limit and proposes a change in the Technical Specifications. We evaluate the changes in the following.

2.0 EVALUATION OF TECHNICAL SPECIFICATION CHANGES

(1) Section 2.1.2 THERMAL POWER

The MCPR safety limit for Cycle 9 with the new GE8x8NB fuel type is changed from 1.04 to 1.06. The new MCPR limit is based on an approved methodology described in the approved Amendment 18 to NEDE-24011-P-A. 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 (AOOs).

Based on the approved methodology and adequate conservatism, we conclude that the new MCPR limit of 1.06 is acceptable for use in Cycle 9.

(2) 5.3.1 FUEL ASSEMBLIES

The fuel types in the Cycle 9 reload core are BP8x8R, GE8x8EB, and GE8x8NB. The fuel types BP8x8R and GE8x8EB are currently in Cycle 8 core. The new fuel type GE8x8NB was approved in Amendment 18 to NEDE-24011-P-A. We thus conclude that the three fuel types BP8x8R, GE8x8EB, and GE8x8NB are acceptable for use in Cycle 9.

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3.0 ENVIRONMENTAL CONSIDERATIONS

This 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 and changes to the surveillance requirements. The 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 off site; and that there should be no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration, and there has been no public comment on such finding. Accordingly, this 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.

4.0 CONCLUSION

The Commission made a proposed determination that this amendment involves no significant hazards consideration which was published in the FEDERAL REGISTER (54 FR 29401) on July 12, 1989, and consulted with the State of North Carolina. No public comments or requests for hearing were received, and the State of North Carolina did not have any comments.

The staff 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, and (2) such activities will be conducted in compliance with the Commission's regulations, and 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. Wu

Dated: November 8, 1989