



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

April 20, 2001

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

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS REGARDING ULTIMATE HEAT SINK TEMPERATURE (TAC NOS. MA8743 AND MA8744)

Dear Mr. Keenan:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 213 to Facility Operating License No. DPR-71 and Amendment No. 240 to Facility Operating License No. DPR-62 for Brunswick Steam Electric Plant, Units 1 and 2. The amendments revise the Technical Specifications (TS) in response to your submittal dated April 26, 2000, and supplemented on November 6, 2000.

The amendments revise the maximum 24-hour average Ultimate Heat Sink (UHS) temperature from 89°F to 90.5°F, and the Condition H temperature range from ">89°F and ≤92°F" to ">90.5°F and ≤ 92°F". In addition, the amendments change the Surveillance Requirement to require verification that the UHS temperature is ≤90.5°F versus ≤89°F.

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

Sincerely,

A handwritten signature in black ink, appearing to read "D. J. Ashley".

D. J. Ashley, Project Manager, Section 2  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-325  
and 50-324

Enclosures:

1. Amendment No. 213 to License No. DPR-71
2. Amendment No. 240 to License No. DPR-62
3. Safety Evaluation

cc w/enclosures:  
See next page

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Sincerely,  
/RA/

D. J. Ashley, Project Manager, Section 2  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

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\*No substantive changes to the SE

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cc: Brunswick Service List

Mr. J. S. Keenan  
Carolina Power & Light Company

Brunswick Steam Electric Plant  
Units 1 and 2

cc:

Mr. William D. Johnson  
Vice President and Corporate Secretary  
Carolina Power & Light Company  
Post Office Box 1551  
Raleigh, North Carolina 27602

Ms. Margaret A. Force  
Assistant Attorney General  
State of North Carolina  
Post Office Box 629  
Raleigh, North Carolina 27602

Mr. Donald E. Warren, Chairman  
Brunswick County Board of Commissioners  
Post Office Box 249  
Bolivia, North Carolina 28422

Mr. Robert P. Gruber  
Executive Director  
Public Staff - NCUC  
Post Office Box 29520  
Raleigh, North Carolina 27626-0520

Resident Inspector  
U.S. Nuclear Regulatory Commission  
8470 River Road  
Southport, North Carolina 28461

Mr. J. J. Lyash  
Director - Site Operations  
Carolina Power & Light Company  
Brunswick Steam Electric Plant  
Post Office Box 10429  
Southport, North Carolina 28461

Mr. John H. O'Neill, Jr.  
Shaw, Pittman, Potts & Trowbridge  
2300 N Street, NW.  
Washington, DC 20037-1128

Mr. Norman R. Holden, Mayor  
City of Southport  
201 East Moore Street  
Southport, North Carolina 28461

Mr. Mel Fry, Director  
Division of Radiation Protection  
N.C. Department of Environment  
and Natural Resources  
3825 Barrett Dr.  
Raleigh, North Carolina 27609-7721

Mr. Dan E. Summers  
Emergency Management Coordinator  
New Hanover County Department of  
Emergency Management  
Post Office Box 1525  
Wilmington, North Carolina 28402

Mr. C. J. Gannon  
Plant Manager  
Carolina Power & Light Company  
Brunswick Steam Electric Plant  
Post Office Box 10429  
Southport, North Carolina 28461

Mr. Terry C. Morton  
Manager  
Performance Evaluation and  
Regulatory Affairs CPB 7  
Carolina Power & Light Company  
Post Office Box 1551  
Raleigh, North Carolina 27602-1551

Public Service Commission  
State of South Carolina  
Post Office Drawer 11649  
Columbia, South Carolina 29211

Mr. David C. DiCello  
Manager - Regulatory Affairs  
Carolina Power & Light Company  
Post Office Box 10429  
Southport, NC 28461



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. 213  
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 April 26, 2000, as supplemented on November 6, 2000, 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:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 213, 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 of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



*for* Richard P. Correia, Chief, Section 2  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: April 20, 2001

ATTACHMENT TO LICENSE AMENDMENT NO. 213

FACILITY OPERATING LICENSE NO. DPR-71

DOCKET NO. 50-325

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages

Insert Pages

3.7-7

3.7-7

3.7-9

3.7-9

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>G. One required NSW pump inoperable.</p> <p><u>AND</u></p> <p>Two required CSW pumps inoperable.</p>	<p>G.1 Verify by administrative means that two Unit 1 NSW pumps are OPERABLE.</p> <p><u>AND</u></p> <p>G.2.1 Restore required NSW pump to OPERABLE status.</p> <p><u>OR</u></p> <p>G.2.2 Restore one required CSW pump to OPERABLE status.</p>	<p>Immediately</p> <p>72 hours</p> <p>72 hours</p>
<p>H. Water temperature of the UHS &gt; 90.5°F and ≤ 92°F.</p>	<p>H.1 Verify water temperature of the UHS is ≤ 90.5°F averaged over previous 24 hour period.</p>	<p>Once per hour</p>

(continued)



SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	Verify the water level in the SW pump suction bay of the intake structure is $\geq -6$ ft mean sea level.	24 hours
SR 3.7.2.2	Verify the water temperature of UHS is $\leq 90.5^{\circ}\text{F}$ .	24 hours
SR 3.7.2.3	<p>-----NOTE----- Isolation of flow to individual components does not render SW System inoperable. -----</p> <p>Verify each SW System manual, power operated, and automatic valve in the flow paths servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	31 days
SR 3.7.2.4	<p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. A single test at the specified Frequency will satisfy this Surveillance for both units.</li> <li>2. Isolation of flow to individual components does not render SW System inoperable.</li> </ol> <p>-----</p> <p>Verify automatic transfer of each DG cooling water supply from the normal SW supply to the alternate SW supply on low DG jacket cooling water supply pressure.</p>	92 days

(continued)



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CAROLINA POWER & LIGHT COMPANY, et al.

DOCKET NO. 50-324

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 2  
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 240  
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 April 26, 2000, as supplemented on November 6, 2000, 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. 240, 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 of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*Karla N. Tallon*

*for* Richard P. Correia, Chief, Section 2  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: April 20, 2001

ATTACHMENT TO LICENSE AMENDMENT NO. 240

FACILITY OPERATING LICENSE NO. DPR-62

DOCKET NO. 50-324

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages

Insert Pages

3.7-7

3.7-7

3.7-9

3.7-9

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>G. One required NSW pump inoperable.</p> <p><u>AND</u></p> <p>Two required CSW pumps inoperable.</p>	<p>G.1 Verify by administrative means that two Unit 2 NSW pumps are OPERABLE.</p> <p><u>AND</u></p> <p>G.2.1 Restore required NSW pump to OPERABLE status.</p> <p><u>OR</u></p> <p>G.2.2 Restore one required CSW pump to OPERABLE status.</p>	<p>Immediately</p> <p>72 hours</p> <p>72 hours</p>
<p>H. Water temperature of the UHS &gt; 90.5°F and ≤ 92°F.</p>	<p>H.1 Verify water temperature of the UHS is ≤ 90.5°F averaged over previous 24 hour period.</p>	<p>Once per hour</p>

(continued)

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	Verify the water level in the SW pump suction bay of the intake structure is $\geq -6$ ft mean sea level.	24 hours
SR 3.7.2.2	Verify the water temperature of UHS is $\leq 90.5^{\circ}\text{F}$ .	24 hours
SR 3.7.2.3	<p>-----NOTE----- Isolation of flow to individual components does not render SW System inoperable. -----</p> <p>Verify each SW System manual, power operated, and automatic valve in the flow paths servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	31 days
SR 3.7.2.4	<p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. A single test at the specified Frequency will satisfy this Surveillance for both units.</li> <li>2. Isolation of flow to individual components does not render SW System inoperable.</li> </ol> <p>-----</p> <p>Verify automatic transfer of each DG cooling water supply from the normal SW supply to the alternate SW supply on low DG jacket cooling water supply pressure.</p>	92 days

(continued)



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 213 TO FACILITY OPERATING LICENSE NO. DPR-71  
AND AMENDMENT NO. 240 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

By letter dated April 26, 2000, as supplemented on November 6, 2000, Carolina Power and Light Company (the licensee) requested to revise Technical Specification (TS) 3.7.2, "Service Water (SW) System and Ultimate Heat Sink (UHS)" for the Brunswick Steam Electric Plant (BSEP), Units 1 and 2. Specifically, the licensee proposed to change the maximum UHS temperature allowed by TS 3.7.2, "Service Water (SW) System and Ultimate Heat Sink (UHS)," for BSEP, Unit Nos. 1 and 2. The maximum 24-hour average UHS temperature specified in Required Action H.1 is being revised from 89°F to 90.5°F. To provide consistency with the new maximum 24-hour average UHS temperature, these amendments also: (1) revise the Condition H temperature range from ">89°F and ≤92°F" to ">90.5°F and ≤92°F"; and (2) revise Surveillance Requirement (SR) 3.7.2.2 to require verification that the UHS temperature is ≤90.5°F versus ≤89°F. The November 6, 2000, supplement contained additional information that expanded the scope of the initial application, which had been noticed on May 17, 2000, at 65 FR 31356. Subsequently, the supplemented application was noticed on March 21, 2001, at 66 FR 15916.

## 2.0 BACKGROUND

The UHS at BSEP, Units 1 and 2, is the Cape Fear River estuary. The UHS cools the SW system, which is designed to provide cooling water for the removal of heat from equipment required for safe shutdown following a design-basis accident or transient. The safety-related equipment includes the emergency diesel generator (EDG) jacket water coolers, residual heat removal (RHR) pump seal coolers, room cooling units for emergency core cooling system (ECCS) equipment, and RHR SW heat exchangers. The SW system also provides cooling to other components during normal operation. The SW intake is located near the bottom of the intake canal to ensure cooler water is used for heat removal. The intake and discharge canals are separate and the water does not communicate. As such, the warmer discharge water will not adversely affect the intake cooling water temperature. An exception is the EDG jacket water cooler discharge, which discharges to the surface of the intake canal. However, the volume is small compared to the volume of water in the intake canal. The licensee evaluated a worst-case scenario to show that the EDG jacket water cooler discharge would not adversely impact the water temperature for the UHS function.

### 3.0 EVALUATION

Condition H of TS 3.7.2 for the UHS currently requires that when the intake canal water temperature is greater than 89°F and less than or equal to 92°F, the average water temperature over the previous 24 hours must be less than or equal to 89°F and that the temperature be verified once per hour. If this condition is not met, Condition I of the TS requires that the plant be in MODE 3 in 12 hours and in MODE 4 in 36 hours. The proposed amendment would increase the average water temperature to 90.5°F and increase the lower temperature of the condition temperature range. Under the proposed Condition H, when the UHS water temperature is greater than 90.5°F and less than or equal to 92°F, the average UHS water temperature over the previous 24 hours must be less than or equal to 90.5°F. Verification would be required once per hour while in the condition temperature range. If this condition is not met, Condition I of the TS remains unchanged and requires that the plant be in MODE 3 in 12 hours and in MODE 4 in 36 hours.

The current maximum 24-hour average temperature of 89°F is based on an analysis that assumes that the intake canal water level is -8.63 feet mean sea level. However, this is a conservative analysis because at this level the UHS is considered inoperable. The licensee reanalyzed the SW capacity using an intake canal level of -6 feet mean sea level, which is the minimum water level at the intake pump for the UHS to be considered operable according to the TS. While the water level in the pump well of the intake structure is lower than the intake canal, the system hydraulic analysis accounts for this difference in level to ensure adequate pump net positive suction head and flow requirements with an intake canal level at -6 feet mean sea level. The staff finds that the reanalyses bases for the intake canal water level are acceptable.

The current TS Bases state that, with the water temperature greater than 89°F, long-term capability to cool the ECCS and diesel generators loads may be affected. The proposed increase in the intake canal level results in higher water head pressure and, subsequently, higher SW flow rates. With the higher flow rate, the licensee concluded that the SW system averaged 24-hour temperature could be as high as 90.5°F and maintain equivalent heat removal capability. The value of 90.5°F would be the maximum SW temperature allowable for long-term cooling capability. (The UHS is not needed for immediate heat removal to prevent containment overpressurization or overheating or to protect the core.) Additionally, the safety-related components associated with SW cooling were analyzed for a maximum UHS temperature of 92°F and, therefore, will not be adversely affected by the increase in the water temperature.

Based on the above review, the staff finds that, with the proposed TS amendments to change Condition H of TS 3.7.2 and to revise SR 3.7.2.2 to require verification that the UHS temperature is less than or equal to 90.5°F as opposed to 89°F, the UHS can perform its safety function. The staff finds the proposed amendments acceptable.

### 4.0 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.



## 5.0 ENVIRONMENTAL CONSIDERATION

The amendments change 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 change a surveillance requirement. 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 (66 FR 15916). 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.

## 6.0 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: D. Jackson

Date: April 20, 2001