



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

November 29, 2000

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 DC SOURCES DURING SHUTDOWN MODES  
(TAC NOS. MA9534 AND MA9535)

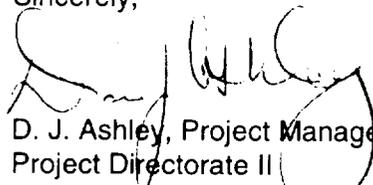
Dear Mr. Keenan:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 211 to Facility Operating Licenses DPR-71 and Amendment No. 238 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 July 27, 2000.

The amendments change the TS to require one of the DC electrical power subsystems to be operable when a unit is in Modes 4 and 5, and during movement of irradiated fuel assemblies in the secondary containment.

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,

  
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. 211 to  
License No. DPR-71
2. Amendment No. 238 to  
License No. DPR-62
3. Safety Evaluation

cc w/enclosures:  
See next page

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

November 30, 2000

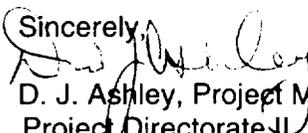
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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

CAROLINA POWER & LIGHT COMPANY, et al.

DOCKET NO. 50-325

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 211  
License No. DPR-71

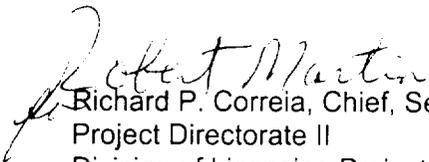
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment filed by Carolina Power & Light Company (the licensee), dated July 27, 2000, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's 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. 211, 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

  
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: November 29, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 211

FACILITY OPERATING LICENSE NO. DPR-71

DOCKET NO. 50-325

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove Page

3.8-27

Insert Page

3.8-27

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources—Shutdown

LCO 3.8.5 One Unit 1 DC electrical power subsystem shall be OPERABLE. |

APPLICABILITY: MODES 4 and 5,  
During movement of irradiated fuel assemblies in the  
secondary containment.

ACTIONS

-----NOTE-----  
LCO 3.0.3 is not applicable.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required DC electrical power subsystem inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	(continued)



UNITED STATES  
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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. 238  
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 July 27, 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. 238, 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

  
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: November 29, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 238

FACILITY OPERATING LICENSE NO. DPR-62

DOCKET NO. 50-324

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove Page

3.8-27

Insert Page

3.8-27

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources—Shutdown

LCO 3.8.5 One Unit 2 DC electrical power subsystem shall be OPERABLE. |

APPLICABILITY: MODES 4 and 5,  
During movement of irradiated fuel assemblies in the  
secondary containment.

ACTIONS

-----NOTE-----  
LCO 3.0.3 is not applicable.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required DC electrical power subsystem inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	<u>OR</u> A.2.1 Suspend CORE ALTERATIONS.  <u>AND</u>	Immediately   (continued)



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 211 TO FACILITY OPERATING LICENSE NO. DPR-71  
AND AMENDMENT NO. 238 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 July 27, 2000, the Carolina Power & Light Company (CP&L, the licensee) submitted a request for changes to the Brunswick Steam Electric Plant, Units 1 and 2, Technical Specifications (TS). The request would change the operability requirements of TS 3.8.5, "DC Sources - Shutdown." Specifically, Limiting Condition for Operation (LCO) 3.8.5 is being revised to require one of the unit's DC electrical power subsystems to be operable when the unit is in Modes 4 and 5 and during movement of irradiated fuel assemblies in the secondary containment. This revision fully adopts the NRC-approved Technical Specification Task Force (TSTF) Traveler TSTF-204, Revision 3, "Revise DC Sources - Shutdown and Inverters - Shutdown to Address Specific Subsystem Requirements."

2.0 BACKGROUND

On June 5, 1998, the NRC issued Amendments 203 and 233 to the Facility Operating Licenses for the Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2, respectively. These amendments approved conversion to the improved TS (ITS), based on Revision 1 of NUREG-1433, "Standard Technical Specifications General Electric Plants, BWR/4." In converting to ITS, CP&L adopted, with modification to account for the BSEP DC distribution system design, the operability requirements of TS 3.8.5 for DC sources when in Modes 4 and 5 and during movement of irradiated fuel assemblies in the secondary containment. This was considered a more restrictive change since, prior to conversion, TS 3.8.2.4.2, "D.C. Distribution - Shutdown," stated:

"As a minimum, Division I or Division II of the D.C. power distribution system shall be OPERABLE."

Revision 1 of NUREG-1433 and the current BSEP TS imply that a full complement of batteries and chargers are required for both divisions of DC power when in Modes 4 and 5 and during movement of irradiated fuel assemblies in the secondary containment.

In approving TSTF-204, Revision 3, the NRC staff recognizes that the operability requirements for DC sources during shutdown conditions, as implied by NUREG-1433, Revision 1, were more restrictive than the current licensing bases for most plants. The approved TSTF-204 provides consistent ITS format and presentation for plants converting to ITS, while retaining current requirements associated with the DC sources. In the proposed change request of July 27, 2000, the licensee revised the operability requirements for the BSEP DC sources during shutdown conditions, to be consistent with the TS requirements, as they existed at BSEP prior to conversion to ITS, and the guidance of TSTF-204, Revision 3.

### 3.0 EVALUATION

The licensee proposed a revision to its BSEP TS to fully adopt the NRC-approved TSTF Traveler TSTF-204, Revision 3, "Revise DC Sources - Shutdown and Inverters - Shutdown to Address Specific Subsystem Requirements," by revising TS 3.8.5 (Unit 1 is quoted; however, it is typical of both units' TS) from:

"The following DC electrical power subsystem shall be OPERABLE:

- a. The Unit 1 DC electrical power subsystems needed to support the DC electrical power distribution subsystem(s) required by LCO 3.8.8, "Distribution Systems - Shutdown;" and
- b. The Unit 2 DC electrical power subsystem needed to support the DC electrical power distribution subsystem(s) required by LCO 3.8.8, "Distribution Systems - Shutdown"

to (Unit 1 is quoted; however, it is typical of both units' TS):

"One Unit 1 DC electrical power subsystem shall be OPERABLE."

Additionally, the licensee also proposed to revise wording of the LCO 3.8.5's Condition A to read, from "One or more required DC electrical power subsystems inoperable" to "One required DC electrical power subsystem inoperable" to be consistent with the revised LCO requirement.

The licensee stated that the DC power sources at BSEP consist of two independent divisions per unit, designated as Division I and Division II. Each division includes a 250 VDC battery, center tapped, to form two 125 VDC batteries. Each 125 VDC battery has an associated full-capacity battery charger. The chargers are powered by the same division of the Class IE distribution system for which the associated DC subsystem supplies the control power. To enhance the availability of Class IE power, each unit provides DC control power for operation of two of the four 4.16 kV emergency buses and two of the four 480 V emergency buses, as well as control power for two of the four diesel generators. Therefore, loss of any DC electrical power subsystem does not prevent the minimum safety function from being performed. The staff reviewed the BSEP Final Safety Analysis reports and the proposed changes. The staff verified that operability requirements of BSEP's DC electrical power sources would remain:

- a. during Modes 4 and 5, and
- b. during movement of irradiated fuel assemblies in the secondary containment.

These requirements ensure that:

- a. The facility can be maintained in the shutdown or refueling condition for extended periods;
- b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status; and
- c. Adequate DC electrical power is provided to mitigate events postulated during shutdown, such as an inadvertent draindown of the vessel or a fuel handling accident.

In approving TSTF 204, Revision 3, the staff requires the licensee to insert in TS Bases new paragraphs to include, "...The Shutdown Technical Specification requirements are designed to ensure that the unit has the capability to mitigate the consequences of certain postulated accidents. Worst-case design basis accidents, which are analyzed for operating modes, are not as significant a concern during shutdown modes due to lower energy involved. The TS, therefore, require a lesser complement of electrical equipment to be available during shutdown than is required during operating modes. More recent work completed on the potential risks associated with shutdown, however, have found significant risk associated with certain shutdown evolutions. As a result, in addition to the requirements established in the TS, the industry has adopted NUMARC 91-06, "Guidelines for Industry Action to Assess Shutdown Management," as an industry initiative to manage shutdown and associated electrical support to maintain risk at an acceptable low level. This may require the availability of additional equipment beyond that required by the shutdown TS."

The licensee stated that this concept, as embedded in TSTF 204, is consistent with the BSEP TS, prior to conversion to the current ITS, in that the BSEP TS 3.8.2.4.2, "D.C. Distribution - Shutdown," required either Division I or Division II of the DC power distribution system to be operable when in Modes 4 and 5 and during movement of irradiated fuel assemblies in the secondary containment.

The staff reviewed the pre-ITS conversion requirements for the BSEP DC Distribution - Shutdown, to verify that the proposed changes will return the operability requirements of LCO 3.8.5 to the pre-ITS licensing bases for the operability requirements of the DC sources when the facility is in Modes 4 and 5 and during movement of irradiated fuel assemblies in the secondary containment.

The staff reviewed the existing configuration of the BSEP's 125 VDC systems (i.e., each unit provides DC control power for operation of two of the four 4.16 kV emergency buses and two of the four 480 V emergency buses, as well as control power for two of the four diesel generators), and finds that LCO 3.8.5 currently includes operability requirements for both units' DC power distribution systems, and thus the staff concurs that by returning BSEP TS to the pre-ITS licensing bases for the DC system, it is no longer necessary for the licensee to maintain DC operability requirements for the operating unit's DC system in the shutdown unit's TS. The bases for the above staff finding is as follows:

The current BSEP's DC sources power systems are configured to provide power in such a way that while the shutdown unit is to meet the proposed revised TS 3.8.5, "DC Sources - Shutdown," the operating unit is governed by existing TS 3.8.4, "DC - Sources Operating." TS 3.8.4 includes operability requirements for both units' DC systems. Specifically, for a unit in

Modes 1, 2, and 3, LCO 3.8.4 (Unit 1 is quoted; however, it is typical of both units' TS) states:

"The following DC electrical power subsystems shall be OPERABLE:

- a. Unit 1 Division I and Division II DC electrical power subsystems; and
- b. Unit 2 Division I and Division II DC electrical power subsystems."

With one of the required DC electrical power subsystems inoperable, existing LCO 3.8.4's Action A.1 requires the required subsystem to be restored to operable status within 7 days. If this is not accomplished, then existing LCO 3.8.4's Action B.1 requires the plant to be placed in Mode 3 within 12 hours. Under such conditions, the operating unit would also enter TS 3.8.7, "Distribution Systems - Operating." With a DC electrical power subsystem, on a shutdown unit, inoperable for maintenance, the operating unit would enter TS 3.8.7's Condition C. The Actions associated with Condition C of TS 3.8.7 require that DC electrical power distribution subsystems be immediately transferred to their alternate DC source and provide a 7-day allowed outage time (AOT), which is consistent with TS 3.8.4. Both TS 3.8.4 and TS 3.8.7 account for the fact that with a DC electrical power distribution subsystem inoperable, the remaining DC subsystems are capable of supporting the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition. However, since the overall reliability of the DC system is reduced (i.e., a single failure could result in loss of control power to two of the four 4.16 kV emergency buses and two of the four 480 V emergency buses, or loss of control power for two of the four diesel generators), the TS thus impose a 7-day AOT. As such, the proposed changes do not affect current operability requirements for a unit in Modes 1, 2, and 3.

Furthermore, the proposed changes only affect the plant at lower energy levels and involve potential accidents occurring during shutdown modes. Assuming a single failure concurrent with a loss of all offsite or all onsite power during such events is not required. Additionally, the licensee has stated that BSEP had adopted NUMARC 91-06, "Guidelines for Industry Actions to Assess Shutdown Management," to maintain plant shutdown risk at an acceptable low level, as required in the staff-approved TSTF-204. Thus, the staff finds that the proposed changes are consistent with those pre-conversion TS licensing bases requirements, as they existed prior to conversion to ITS, and with TSTF-204, Revision 3, which was approved by the NRC on February 16, 2000.

Based on the above review, the staff finds the licensee-proposed change to revise LCO 3.8.5 to require one division of the shutdown unit's DC system to be operable, and its related proposed change to revise wording of LCO 3.8.5's Condition A from "One or more required DC electrical power subsystems inoperable" to "One required DC electrical power subsystem inoperable" to be in conformance with TSTF-204, Revision 3, to the STS; therefore, both proposed changes are 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. 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 (65 FR 56948). 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: Tommy Le

Date: November 29, 2000