



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

July 23, 2010

Mr. Michael J. Annacone, 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 PRIMARY CONTAINMENT ISOLATION  
INSTRUMENTATION PER TSTF-306, REVISION 2 (TAC NOS. ME2486 AND  
ME2487)**

Dear Mr. Annacone:

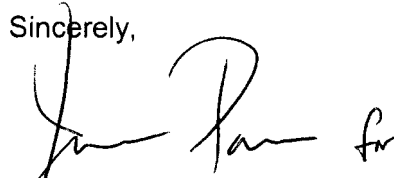
The U.S. Nuclear Regulatory Commission (NRC, the Commission) has issued the enclosed Amendment No. 255 to Renewed Facility Operating License No. DPR-71 and Amendment No. 283 to Renewed Facility Operating License No. DPR-62 for Brunswick Steam Electric Plant, Units 1 and 2, respectively. The amendments are in response to your application dated October 27, 2009. The amendments would modify technical specifications (TSs) requirements related to primary containment isolation instrumentation in accordance with the NRC-approved Technical Specification Task Force (TSTF), Standard Technical Specifications Change Traveler, TSTF-306, Revision 2, "Add action to LCO [Limiting Condition for Operation] 3.3.6.1 to give option to isolate the penetration." The amendments would revise TS Section 3.3.6.1, "Primary Containment Isolation Instrumentation," by adding an ACTIONS note allowing intermittent opening, under administrative control, of penetration flow paths that are isolated. Additionally, the traversing in-core probe system would be added as a separate isolation function with an associated required action to isolate the penetration within 24 hours rather than immediately initiating a unit shutdown.

M. Annacone

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A copy of the related safety evaluation is also enclosed. A notice of issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

A handwritten signature in black ink, appearing to read 'Farideh E. Saba', followed by a small 'for'.

Farideh E. Saba, Senior Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-325 and 50-324

Enclosures:

1. Amendment No. 255 to  
License No. DPR-71
2. Amendment No. 283 to  
License No. DPR-62
3. Safety Evaluation

cc w/encls: Distribution via Listserv



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

CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-325

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 255  
Renewed 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 27, 2009, 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 Renewed 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. 255, 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.

FOR THE NUCLEAR REGULATORY COMMISSION

***/RA EBrown for DBroaddus)***

Douglas A. Broaddus, Chief  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Operating License  
and Technical Specifications

Date of Issuance: July 23, 2010

ATTACHMENT TO LICENSE AMENDMENT NO. 255  
RENEWED FACILITY OPERATING LICENSE NO. DPR-71  
DOCKET NO. 50-325

Replace Page 4 of Renewed Operating License DPR-71 with the attached Page 4.

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

3.3-49  
3.3-50  
3.3-51  
3.3-54  
3.3-55  
3.3-57  
3.3-58

Insert Pages

3.3-49  
3.3-50  
3.3-51  
3.3-54  
3.3-55  
3.3-57  
3.3-58

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 255 , are hereby incorporated in the license. Carolina Power & Light Company shall operate the facility in accordance with the Technical Specifications.

For Surveillance Requirements (SRs) that are new in Amendment 203 to Renewed Facility Operating License DPR-71, the first performance is due at the end of the first surveillance interval that begins at implementation of Amendment 203. For SRs that existed prior to Amendment 203, including SRs with modified acceptance criteria and SRs whose frequency of performance is being extended, the first performance is due at the end of the first surveillance interval that begins on the date the Surveillance was last performed prior to implementation of Amendment 203.

- (a) Effective June 30, 1982, the surveillance requirements listed below need not be completed until July 15, 1982. Upon accomplishment of the surveillances, the provisions of Technical Specification 4.0.2 shall apply.

Specification 4.3.3.1, Table 4.3.3-1, Items 5.a and 5.b

- (b) Effective July 1, 1982, through July 8, 1982, Action statement "a" of Technical Specification 3.8.1.1 shall read as follows:

ACTION:

- a. With either one offsite circuit or one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.A. sources by performing Surveillance Requirements 4.8.1.1.1.a and 4.8.1.1.2.a.4 within two hours and at least once per 12 hours thereafter; restore at least two offsite circuits and four diesel generators to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

- (3) Deleted by Amendment No. 206.

- D. The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans, including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The plans, which contain Safeguards Information protected under 10 CFR 73.21, are entitled: "Physical Security Plan, Revision 2," and "Safeguards Contingency Plan, Revision 2," submitted by letter dated May 17, 2006, and "Guard Training and Qualification Plan, Revision 0," submitted by letter dated September 30, 2004.

### 3.3 INSTRUMENTATION

#### 3.3.6.1 Primary Containment Isolation Instrumentation

LCO 3.3.6.1 The primary containment isolation instrumentation for each Function in Table 3.3.6.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6.1-1.

#### ACTIONS

#### NOTES

1. Penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Place channel in trip.	12 hours for Functions 2.a, 2.b, 6.b, 7.a, and 7.b  <u>AND</u> 24 hours for Functions other than Functions 2.a, 2.b, 6.b, 7.a, and 7.b
B. One or more Functions with isolation capability not maintained.	B.1 Restore isolation capability.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Enter the Condition referenced in Table 3.3.6.1-1 for the channel.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	D.1 Isolate associated main steam line (MSL).	12 hours
	<u>OR</u>	
	D.2.1 Be in MODE 3.	12 hours
	<u>AND</u>	
	D.2.2 Be in MODE 4.	36 hours
E. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	E.1 Be in MODE 2.	6 hours
F. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	F.1 Isolate the affected penetration flow path(s).	1 hour
G. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	G.1 Isolate the affected penetration flow path(s).	24 hour
H. Required Action and associated Completion Time for Condition F or G not met.	H.1 Be in MODE 3.	12 hours
	<u>AND</u>	
<u>OR</u>	H.2 Be in MODE 4.	36 hours
As required by Required Action C.1 and referenced in Table 3.3.6.1-1.		

(continued)



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	I.1 Declare associated standby liquid control subsystem (SLC) inoperable.	1 hour
	<u>OR</u> I.2 Isolate the Reactor Water Cleanup (RWCU) System.	1 hour
J. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	J.1 Initiate action to restore channel to OPERABLE status.	Immediately
	<u>OR</u> J.2 Initiate action to isolate the Residual Heat Removal (RHR) Shutdown Cooling (SDC) System.	Immediately

# Primary Containment Isolation Instrumentation

## 3.3.6.1

Table 3.3.6.1-1 (page 1 of 5)  
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Isolation					
a. Reactor Vessel Water Level—Low Level 3	1,2,3	2	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.8	≥ 13 inches
b. Main Steam Line Pressure—Low	1	2	E	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 825 psig
c. Main Steam Line Flow—High	1,2,3	2 per MSL	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.8	≤ 138% rated steam flow
d. Condenser Vacuum—Low	1, 2 <sup>(a)</sup> , 3 <sup>(a)</sup>	2	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 7.5 inches Hg vacuum
e. Main Steam Isolation Valve Pit Temperature—High	1,2,3	2	D	SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 197°F
2. Primary Containment Isolation					
a. Reactor Vessel Water Level—Low Level 1	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 153 inches
b. Drywell Pressure—High	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 1.8 psig

(continued)

(a) With any turbine stop valve not closed.

# Primary Containment Isolation Instrumentation

3.3.6.1

Table 3.3.6.1-1 (page 2 of 5)  
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Primary Containment Isolation (continued)					
c. Main Stack Radiation—High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.8	(b)
d. Reactor Building Exhaust Radiation— High	1,2,3	1	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 16 mR/hr
3. High Pressure Coolant Injection (HPCI) System Isolation					
a. HPCI Steam Line Flow—High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 275% rated steam flow
b. HPCI Steam Line Flow—High Time Delay Relay	1,2,3	1	F	SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.9	≥ 4 seconds and ≤ 12 seconds
c. HPCI Steam Supply Line Pressure—Low	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.7	≥ 104 psig
d. HPCI Turbine Exhaust Diaphragm Pressure—High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 9 psig
e. Drywell Pressure—High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 1.8 psig
f. HPCI Steam Line Area Temperature— High	1,2,3	1	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 200°F
g. HPCI Steam Line Tunnel Ambient Temperature—High	1,2,3	1	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 200°F
h. HPCI Steam Line Tunnel Differential Temperature—High	1,2,3	1	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 50°F
(continued)					

(b) Allowable Value established in accordance with the methodology in the Offsite Dose Calculation Manual.

# Primary Containment Isolation Instrumentation

3.3.6.1

Table 3.3.6.1-1 (page 4 of 5)  
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. RCIC System Isolation (continued)					
j. RCIC Equipment Area Temperature—High	1,2,3	2	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 175°F
k. RCIC Equipment Area Differential Temperature—High	1,2,3	1	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 50°F
5. Reactor Water Cleanup (RWCU) System Isolation					
a. Differential Flow—High	1,2,3	1	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 73 gpm
b. Differential Flow—High Time Delay	1,2,3	1	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 30 minutes
c. Area Temperature—High	1,2,3	3 1 per room	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 150°F
d. Area Ventilation Differential Temperature—High	1,2,3	2	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 50°F
e. Piping Outside RWCU Rooms Area Temperature—High	1,2,3	1	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 120°F
f. SLC System Initiation	1,2	1 <sup>(c)</sup>	I	SR 3.3.6.1.7	NA
g. Reactor Vessel Water Level—Low Level 2	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 101 inches

(continued)

(c) SLC System Initiation only inputs into one trip system.

# Primary Containment Isolation Instrumentation

3.3.6.1

Table 3.3.6.1-1 (page 5 of 5)  
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
6. RHR Shutdown Cooling System Isolation					
a. Reactor Steam Dome Pressure—High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.7	≤ 137 psig
b. Reactor Vessel Water Level— Low Level 1	3,4,5	2 <sup>(d)</sup>	J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 153 inches
7. Traversing In-core Probe Isolation					
a. Reactor Vessel Water Level – Low Level 1	1,2,3	2	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 153 inches
b. Drywell Pressure - High	1,2,3	2	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 1.8 psig

(d) In MODES 4 and 5, provided RHR Shutdown Cooling System integrity maintained, only one channel per trip system with an isolation signal available to one RHR shutdown cooling pump suction isolation valve is required.



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

CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-324

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 283  
Renewed 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 27, 2009, 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 Renewed 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. 283, 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.

FOR THE NUCLEAR REGULATORY COMMISSION

***/RA EBrown for DBroaddus***

Douglas A. Broaddus, Chief  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Operating License  
and Technical Specifications

Date of Issuance: July 23, 2010

ATTACHMENT TO LICENSE AMENDMENT NO. 283

RENEWED FACILITY OPERATING LICENSE NO. DPR-62

DOCKET NO. 50-324

Replace Page 3 of Renewed Operating License DPR-62 with the attached Page 3.

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

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as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

- (4) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use in amounts as required any byproduct, source, and special nuclear materials without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components;
- (5) Pursuant to the Act and 10 CFR Parts 30 and 70 to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of Brunswick Steam Electric Plant, Unit Nos. 1 and 2, and H. B. Robinson Steam Electric Plant, Unit No. 2
- (6) Carolina Power & Light Company shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report for the facility and as approved in the Safety Evaluation Report dated November 22, 1977, as supplemented April 1979, June 11, 1980, December 30, 1986, December 6, 1989, July 28, 1993, and February 10, 1994 respectively, subject to the following provision:

The licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

- C. This renewed license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

The licensee is authorized to operate the facility at steady state reactor core power levels not in excess of 2923 megawatts (thermal).

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 283, are hereby incorporated in the license. Carolina Power & Light Company shall operate the facility in accordance with the Technical Specifications.

### 3.3 INSTRUMENTATION

#### 3.3.6.1 Primary Containment Isolation Instrumentation

LCO 3.3.6.1 The primary containment isolation instrumentation for each Function in Table 3.3.6.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6.1-1.

#### ACTIONS

#### NOTES

1. Penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Place channel in trip.	12 hours for Functions 2.a, 2.b, 6.b, 7.a, and 7.b  <u>AND</u> 24 hours for Functions other than Functions 2.a, 2.b, 6.b, 7.a, and 7.b
B. One or more Functions with isolation capability not maintained.	B.1 Restore isolation capability.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Enter the Condition referenced in Table 3.3.6.1-1 for the channel.	Immediately

(continued)

**ACTIONS (continued)**

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	D.1 Isolate associated main steam line (MSL).	12 hours
	<u>OR</u>	
	D.2.1 Be in MODE 3.	12 hours
	<u>AND</u>	
	D.2.2 Be in MODE 4.	36 hours
E. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	E.1 Be in MODE 2.	6 hours
F. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	F.1 Isolate the affected penetration flow path(s).	1 hour
G. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	G.1 Isolate the affected penetration flow path(s).	24 hours
H. Required Action and associated Completion Time for Condition F or G not met.	H.1 Be in MODE 3.	12 hours
	<u>AND</u>	
<u>OR</u>	H.2 Be in MODE 4.	36 hours
As required by Required Action C.1 and referenced in Table 3.3.6.1-1.		

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	I.1 Declare associated standby liquid control subsystem (SLC) inoperable.	1 hour
	<u>OR</u> I.2 Isolate the Reactor Water Cleanup (RWCU) System.	1 hour
J. As required by Required Action C.1 and referenced in Table 3.3.6.1-1.	J.1 Initiate action to restore channel to OPERABLE status.	Immediately
	<u>OR</u> J.2 Initiate action to isolate the Residual Heat Removal (RHR) Shutdown Cooling (SDC) System.	Immediately

# Primary Containment Isolation Instrumentation

## 3.3.6.1

Table 3.3.6.1-1 (page 1 of 5)  
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Isolation					
a. Reactor Vessel Water Level—Low Level 3	1,2,3	2	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.8	≥ 13 inches
b. Main Steam Line Pressure—Low	1	2	E	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 825 psig
c. Main Steam Line Flow—High	1,2,3	2 per MSL	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.8	≤ 138% rated steam flow
d. Condenser Vacuum—Low	1, 2 <sup>(a)</sup> , 3 <sup>(a)</sup>	2	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 7.5 inches Hg vacuum
e. Main Steam Isolation Valve Pit Temperature—High	1,2,3	2	D	SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 197°F
f. Main Steam Line Flow—High (Not in Run)	2,3	2	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.8	≤ 33% rated steam flow
2. Primary Containment Isolation					
e. Reactor Vessel Water Level—Low Level 1	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 153 inches
b. Drywell Pressure—High	1,2,3	2	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 1.8 psig

(continued)

(a) With any turbine stop valve not closed.

# Primary Containment Isolation Instrumentation

## 3.3.6.1

Table 3.3.6.1-1 (page 2 of 5)  
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Primary Containment Isolation (continued)					
c. Main Stack Radiation—High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.8	(b)
d. Reactor Building Exhaust Radiation—High	1,2,3	1	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 16 mR/hr
3. High Pressure Coolant Injection (HPCI) System Isolation					
a. HPCI Steam Line Flow—High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 275% rated steam flow
b. HPCI Steam Line Flow—High Time Delay Relay	1,2,3	1	F	SR 3.3.6.1.6 SR 3.3.6.1.7 SR 3.3.6.1.9	≥ 4 seconds and ≤ 12 seconds
c. HPCI Steam Supply Line Pressure—Low	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.7	≥ 104 psig
d. HPCI Turbine Exhaust Diaphragm Pressure—High	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 9 psig
e. Drywell Pressure—High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 1.8 psig
f. HPCI Steam Line Area Temperature—High	1,2,3	1	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 200°F
g. HPCI Steam Line Tunnel Ambient Temperature—High	1,2,3	1	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 200°F
h. HPCI Steam Line Tunnel Differential Temperature—High	1,2,3	1	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 50°F

(continued)

(b) Allowable Value established in accordance with the methodology in the Offsite Dose Calculation Manual.

# Primary Containment Isolation Instrumentation

## 3.3.6.1

Table 3.3.6.1-1 (page 4 of 5)  
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. RCIC System Isolation (continued)					
j. RCIC Equipment Area Temperature—High	1,2,3	2	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 175°F
k. RCIC Equipment Area Differential Temperature—High	1,2,3	1	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 50°F
5. Reactor Water Cleanup (RWCU) System Isolation					
a. Differential Flow—High	1,2,3	1	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 73 gpm
b. Differential Flow—High Time Delay	1,2,3	1	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 30 minutes
c. Area Temperature—High	1,2,3	3 1 per room	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 150°F
d. Area Ventilation Differential Temperature—High	1,2,3	2	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 50°F
e. Piping Outside RWCU Rooms Area Temperature—High	1,2,3	1	F	SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 120°F
f. SLC System Initiation	1,2	1 <sup>(c)</sup>	I	SR 3.3.6.1.7	NA
g. Reactor Vessel Water Level—Low Level 2	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 101 inches

(continued)

(c) SLC System Initiation only inputs into one trip system.

## Primary Containment Isolation Instrumentation 3.3.6.1

Table 3.3.6.1-1 (page 5 of 5)  
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
6. RHR Shutdown Cooling System Isolation					
a. Reactor Steam Dome Pressure—High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.7	≤ 137 psig
b. Reactor Vessel Water Level— Low Level 1	3,4,5	2 <sup>(d)</sup>	J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 153 inches
7. Traversing In-core Probe Isolation					
a. Reactor Vessel Water Level - Low Level 1	1,2,3	2	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 153 inches
b. Drywell Pressure - High	1,2,3	2	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 1.8 psig

(d) In MODES 4 and 5, provided RHR Shutdown Cooling System integrity maintained, only one channel per trip system with an isolation signal available to one RHR shutdown cooling pump suction isolation valve is required.





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

**SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION**

**RELATED TO AMENDMENT NOS. 255 AND 283**

**TO RENEWED FACILITY OPERATING LICENSES NOS. DPR-71 AND 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 October 27, 2009 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML093080132), the Carolina Power & Light Company (the licensee) requested amendments to Renewed Operating Licenses DPR-71 and DPR-62 for the Brunswick Steam Electric Plant (BSEP), Units 1 and 2, respectively. The proposed amendments would modify technical specifications (TSs) requirements related to primary containment isolation instrumentation in accordance with the Nuclear Regulatory Commission (NRC or the Commission)-approved Technical Specification Task Force (TSTF), Standard Technical Specifications Change Traveler, TSTF-306, Revision 2, "Add action to LCO [Limiting Condition for Operation] 3.3.6.1 to give option to isolate the penetration" (ADAMS Accession No. ML003725864). The amendments would revise TS Section 3.3.6.1, "Primary Containment Isolation Instrumentation," by adding an ACTIONS note allowing intermittent opening, under administrative control, of penetration flow paths that are isolated. Additionally, the traversing in-core probe (TIP) system would be added as a separate isolation function with an associated Required Action to isolate the penetration within 24 hours rather than immediately initiating a unit shutdown.

**2.0 REGULATORY EVALUATION**

The NRC staff considered the following regulatory requirements and guidance in its review of the application: (1) The criteria for inclusion of limiting conditions for operation (LCOs) in the TS in Section 50.36 of Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR) and (2) TSTF-306, Revision 2.

Section 50.36(c)(2)(i) of 10 CFR Part 50 states that the TS will contain LCOs that "are the lowest functional capability or performance levels of equipment required for safe operation of the facility. When a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specifications until the condition can be met."

The primary containment isolation instrumentation automatically initiates closure of appropriate primary containment isolation valves (PCIVs). The function of the PCIVs, in combination with

other accident mitigation systems, is to limit fission product release during and following postulated design-basis accidents (DBAs). Primary containment isolation within the time limits specified for those isolation valves designed to close automatically ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analysis for a DBA. The TIP system isolation ball valves, which are only open when the TIP system is in use, receive isolation signals from the Primary Containment Isolation Function, as specified in Table 3.3.6.1-1, Function 2.a (Reactor Vessel Water Level - Low Level 1) and 2.b (Drywell Pressure - High) of the TS. As such, an inoperability of the Primary Containment Isolation Function affecting only the TIP instrumentation would require a unit shutdown. Isolation of the TIP system penetration flow paths in a design-basis event is assumed to be accomplished by manually actuating the shear (squib) valves.

### 3.0 TECHNICAL EVALUATION

TSTF-306, Revision 2, was submitted to the NRC on June 20, 2000, and was made available for plant-specific adoption via incorporation into Revision 2 of the Standard Technical Specifications (STSS), NUREGs 1430-1434 on June 30, 2001. The licensee's proposal is consistent with the intent of TSTF-306, Revision 2.

#### 3.1 Proposed TS Changes

The licensee proposes the following changes to BSEP, Units 1 and 2, TS 3.3.6.1, "Primary Containment Isolation Instrumentation":

1. Adds a Note 1 to the Actions Notes that states "Penetration flow paths may be unisolated intermittently under administrative controls." The existing note on separate condition entry now becomes Note 2.
2. Revises the Completion Time of Condition A from "12 hours for Functions 2.a, 2.b, and 6.b AND 24 hours for Functions other than Functions 2.a, 2.b, and 6.b" to "12 hours for Functions 2.a, 2.b, 6.b, 7.a, and 7.b AND 24 hours for Functions other than Functions 2.a, 2.b, 6.b, 7.a and 7.b."
3. Adds Function 7, "Traversing In-core Probe Isolation" along with its appropriate Applicable MODES, Required Channels, Conditions, Surveillance Requirements, and Allowable Values to Table 3.3.6.1-1, "Primary Containment Isolation Instrumentation."
4. Adds new Condition G for TIP system with an associated Required Action to isolate the penetration within 24 hours.
5. Re-letters Conditions G, H and I to H, I and J.
6. Revises the TS Bases for TS 3.3.6.1 to address the above changes.

#### 3.2 Evaluation of Change

TS 3.3.6.1 currently requires a unit shutdown in the event of an inoperability of the TIP instrumentation. The licensee is proposing to allow 24 hours to isolate the affected TIP

penetration flow paths. In addition, the proposal would allow intermittent opening, under administrative control, of penetration flow paths that are isolated. The proposed amendment would also modify the TS Bases to describe the proposed changes and provide supporting information. In its submittal, the licensee indicated that TSTF-306, Revision 2 serves to provide consistency between the requirements for equipment (TS 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)") and the instrumentation that supports the equipment and additional flexibility in the performance of maintenance and repair activities.

Prior to the Approval of TSTF-306, Revision 2, STS 3.3.6.1, "Primary Containment Isolation Instrumentation," would not allow intermittent opening, under administrative controls, of penetration flow paths isolated due to inoperable primary containment isolation instrumentation and would require a shutdown in the event of an inoperability of the TIP instrumentation. TSTF-306, Revision 2 revised STS 3.3.6.1 and its associated Bases to be consistent with requirements of STS 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)," with respect to administratively opening isolated penetration flow paths and to be consistent with the Actions in STS 3.3.6.1 for inoperable manual isolation functions. The Actions for the BSEP, Units 1 and 2, TS 3.3.6.1 would be modified by the addition of a Note allowing intermittent opening, under administrative control, of penetrations that are isolated to comply with Actions, surveillance requirements (SR), or operating conditions. These controls consist of stationing a dedicated operator at the controls of the valve, who is in continuous communication with the control room. The primary containment isolation instrumentation serves as a support system for the primary containment isolation valves. Current BSEP, Units 1 and 2, TS 3.6.1.3 contains an Actions Note that allows penetrations isolated due to Actions, SR, and operating conditions to be intermittently opened under administrative control. The accident consequences are not affected by the allowance of isolated penetrations to be intermittently opened under administrative control due to an inoperable PCIV of its associated instrumentation. Since the Actions for inoperability of the instrumentation need not be more restrictive than the inoperability of the function it supports, the addition of Action Note 1 is acceptable.

The BSEP, Units 1 and 2, TS 3.3.6.1 would be further modified by adding the TIP system isolation as a separate isolation instrumentation Function with an associated Required Action to isolate the penetration within 24 hours rather than having to immediately initiate a unit shutdown. TIP system isolation in a design-basis event (with a loss of offsite power) would be accomplished by manual actuation of the shear valves. Additionally, the Actions for inoperable primary containment isolation instrumentation that requires a unit shutdown are overly restrictive in the event that the inoperability affects only the TIP isolation instrumentation. The proposed Action for the inoperability of this Function is the same as for inoperable manual isolation Functions (i.e., isolate the penetration in 24 hours). This is because the TIP system penetration is a small bore (approximately ½-inch), and its isolation in a design-basis event is via the manually operated shear valves. The ability to manually isolate the TIP system by either the normal isolation valve or the shear valve isolation provides an appropriate level of safety. Therefore, the NRC staff finds the proposed changes acceptable and consistent with the STS and TSTF-306, Revision 2.

### 3.3 Summary

The NRC staff has reviewed the request by the licensee to revise the TS for BSEP, Units 1 and 2. The proposed change is consistent with the STSs and TSTF-306, Revision 2, and

provides reasonable assurance of overall plant safety. Based on the review, the NRC staff concludes that the proposed changes are acceptable. Although the licensee's application included wording for the revised Bases discussion for TS 3.3.6.1, the licensee will formally address the change to the Bases in accordance with the TS Bases Control Program described in TS 5.5.10, "Technical Specifications (TS) Bases Control Program."

#### 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 (75 FR 4114, January 26, 2010). 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.

#### 7.0 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: Kristy A. Bucholtz

Date: July 23, 2010

M. Annacone

- 2 -

A copy of the related safety evaluation is also enclosed. A notice of issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

**/RA/**

Farideh E. Saba, Senior Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-325 and 50-324

Enclosures:

1. Amendment No.255 to  
License No. DPR-71
2. Amendment No. 283 to  
License No. DPR-62
3. Safety Evaluation

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