



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

April 13, 2009

Mr. Benjamin Waldrep, 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 ADOPTION OF TSTF-478, REVISION 2, "BWR TECHNICAL SPECIFICATION CHANGES THAT IMPLEMENT THE REVISED RULE FOR COMBUSTIBLE GAS CONTROL" (TAC NOS. ME0168 AND ME0169)

Dear Mr. Waldrep:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 252 to Renewed Facility Operating License No. DPR-71, and Amendment No. 280 to Renewed Facility Operating License No. DPR-62, Brunswick Steam Electric Plant, Units 1 and 2, respectively. The amendments are in response to your application dated November 24, 2008 (Agencywide Documents Access and Management System Accession No. ML083370316), as supplemented by letter dated April 2, 2009. The amendments delete Technical Specification (TS) 3.6.3.2, "Containment Atmosphere Dilution (CAD) System," and the associated TS Bases that will result in modifications to containment combustible gas control TS requirements as permitted by Section 50.44 of Title 10 of the *Code of Federal Regulations*. This change is consistent with NRC-approved Revision 2 of Technical Specifications Task Force (TSTF) Improved Standard Technical Specifications Change Traveler 478 (TSTF-478), "BWR [Boiling Water Reactor] Technical Specification Changes that Implement the Revised Rule for Combustible Gas Control." The availability of TSTF-478 was announced in the *Federal Register* on November 21, 2007 (72 FR 65610) as part of the consolidated line item improvement process.

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

Sincerely,

A handwritten signature in black ink that reads "Farideh E. Saba".

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. 252 to
Renewed License No. DPR-71
 2. Amendment No. 280 to
Renewed License No. DPR-62
 3. Safety Evaluation
- cc w/enclosures: 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. 252
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), November 24, 2008, as supplemented by letter dated April 2, 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.252 , 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 120 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Thomas H. Boyce, 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: April 13, 2009

ATTACHMENT TO LICENSE AMENDMENT NO252
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

3.6-27
3.6-28
3.6-29
3.6-30
3.6-31
3.6-32
3.6-33
3.6-34
3.6-35
3.6-36

Insert Pages

3.6-27
Delete
3.6-28
3.6-29
3.6-30
3.6-31
3.6-32
3.6-33
3.6-34
3.6-35

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 252 , 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.

3.6 CONTAINMENT SYSTEMS

3.6.3.2 Containment Atmosphere Dilution (CAD) System

The requirement for the CAD System is deleted.

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|----------------|--|-----------------|
| C. (continued) | C.2 Initiate action to suspend OPDRVs. | Immediately |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | FREQUENCY |
|--------------|---|-------------------------------------|
| SR 3.6.4.1.1 | Verify all secondary containment equipment hatches are closed and sealed. | 24 months |
| SR 3.6.4.1.2 | Verify one secondary containment access door is closed in each access opening. | 24 months |
| SR 3.6.4.1.3 | Verify each SGT subsystem can maintain ≥ 0.25 inch of vacuum water gauge in the secondary containment for 1 hour at a flow rate ≤ 3000 cfm. | 24 months on a STAGGERED TEST BASIS |

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---------------------------------|
| A. (continued) | <p>A.2 -----NOTE----- Isolation devices in high radiation areas may be verified by use of administrative means. -----</p> <p>Verify the affected penetration flow path is isolated.</p> | Once per 92 days |
| <p>B. -----NOTE----- Only applicable to penetration flow paths with two isolation dampers. -----</p> <p>One or more penetration flow paths with two SCIDs inoperable.</p> | B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic damper, closed manual damper, or blind flange. | 4 hours |
| C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3. | <p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Be in MODE 4.</p> | <p>12 hours</p> <p>36 hours</p> |

(continued)

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|--|---|--------------------|
| <p>D. Required Action and associated Completion Time of Condition A or B not met during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs.</p> | <p>D.1 -----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>Suspend movement of recently irradiated fuel assemblies in the secondary containment.</p> | <p>Immediately</p> |
| | <p><u>AND</u></p> <p>D.2 Initiate action to suspend OPDRVs.</p> | <p>Immediately</p> |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | FREQUENCY |
|---|------------------|
| <p>SR 3.6.4.2.1 Verify the isolation time of each automatic SCID is within limits.</p> | <p>24 months</p> |
| <p>SR 3.6.4.2.2 Verify each automatic SCID actuates to the isolation position on an actual or simulated actuation signal.</p> | <p>24 months</p> |

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Two SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the secondary containment,
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|--|------------------------------|
| A. One SGT subsystem inoperable in MODE 1, 2 or 3. | A.1 Restore SGT subsystem to OPERABLE status. | 7 days |
| B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Two SGT subsystems inoperable in MODE 1, 2, or 3. | B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4. | 12 hours 36 hours |

(continued)

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|--|--|
| C. One SGT subsystem inoperable during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs. | C.1 Restore SGT subsystem to OPERABLE status. | 31 days |
| D. Required Action and associated Completion Time of Condition C not met. | <p>-----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>D.1 Place OPERABLE SGT subsystem in operation.</p> <p><u>OR</u></p> <p>D.2.1 Suspend movement of recently irradiated fuel assemblies in secondary containment.</p> <p><u>AND</u></p> <p>D.2.2 Initiate action to suspend OPDRVs.</p> | <p>Immediately</p> <p>Immediately</p> <p>Immediately</p> |

(continued)

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|--|--|-----------------|
| E. Two SGT subsystems inoperable during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs. | E.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of recently irradiated fuel assemblies in secondary containment. | Immediately |
| | AND E.2 Initiate action to suspend OPDRVs. | Immediately |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | FREQUENCY |
|--|-----------------------------|
| SR 3.6.4.3.1 Operate each SGT subsystem for ≥ 10 continuous hours with heaters operating. | 31 days |
| SR 3.6.4.3.2 Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP). | In accordance with the VFTP |
| SR 3.6.4.3.3 Verify each SGT subsystem actuates on an actual or simulated initiation signal. | 24 months |



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. 280
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), November 24, 2008, as supplemented by letter dated April 2, 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.280 , 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 120 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Thomas H. Boyce, 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: April 13, 2009

ATTACHMENT TO LICENSE AMENDMENT NO280

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

3.6-27
3.6-28
3.6-29
3.6-30
3.6-31
3.6-32
3.6-33
3.6-34
3.6-35
3.6-36

Insert Pages

3.6-27
Delete
3.6-28
3.6-29
3.6-30
3.6-31
3.6-32
3.6-33
3.6-34
3.6-35

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.280 , are hereby incorporated in the license. Carolina Power & Light Company shall operate the facility in accordance with the Technical Specifications.

3.6 CONTAINMENT SYSTEMS

3.6.3.2 Containment Atmosphere Dilution (CAD) System

The requirement for the CAD System is deleted.

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|----------------|--|-----------------|
| C. (continued) | C.2 Initiate action to suspend OPDRVs. | Immediately |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | FREQUENCY |
|--|-------------------------------------|
| SR 3.6.4.1.1 Verify all secondary containment equipment hatches are closed and sealed. | 24 months |
| SR 3.6.4.1.2 Verify one secondary containment access door is closed in each access opening. | 24 months |
| SR 3.6.4.1.3 Verify each SGT subsystem can maintain ≥ 0.25 inch of vacuum water gauge in the secondary containment for 1 hour at a flow rate ≤ 3000 cfm. | 24 months on a STAGGERED TEST BASIS |

3.6 CONTAINMENT SYSTEMS

3.6.4.2 Secondary Containment Isolation Dampers (SCIDs)

LCO 3.6.4.2 Each SCID shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
 During movement of recently irradiated fuel assemblies in the secondary containment,
 During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

- NOTES-----
1. Penetration flow paths may be unisolated intermittently under administrative controls.
 2. Separate Condition entry is allowed for each penetration flow path.
 3. Enter applicable Conditions and Required Actions for systems made inoperable by SCIDs.
-

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|--|--|
| A. One or more penetration flow paths with one SCID inoperable. | A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic damper, closed manual damper, or blind flange. <u>AND</u> | 8 hours (continued) |

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---------------------------------|
| A. (continued) | <p>A.2 -----NOTE----- Isolation devices in high radiation areas may be verified by use of administrative means. -----</p> <p>Verify the affected penetration flow path is isolated.</p> | Once per 92 days |
| <p>B. -----NOTE----- Only applicable to penetration flow paths with two isolation dampers. -----</p> <p>One or more penetration flow paths with two SCIDs inoperable.</p> | B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic damper, closed manual damper, or blind flange. | 4 hours |
| C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3. | <p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Be in MODE 4.</p> | <p>12 hours</p> <p>36 hours</p> |

(continued)

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|--|---|--------------------|
| <p>D. Required Action and associated Completion Time of Condition A or B not met during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs.</p> | <p>D.1 -----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>Suspend movement of recently irradiated fuel assemblies in the secondary containment.</p> | <p>Immediately</p> |
| | <p><u>AND</u></p> <p>D.2 Initiate action to suspend OPDRVs.</p> | <p>Immediately</p> |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | FREQUENCY |
|---|------------------|
| <p>SR 3.6.4.2.1 Verify the isolation time of each automatic SCID is within limits.</p> | <p>24 months</p> |
| <p>SR 3.6.4.2.2 Verify each automatic SCID actuates to the isolation position on an actual or simulated actuation signal.</p> | <p>24 months</p> |

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Two SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the secondary containment,
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|--|------------------------------|
| A. One SGT subsystem inoperable in MODE 1, 2 or 3. | A.1 Restore SGT subsystem to OPERABLE status. | 7 days |
| B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Two SGT subsystems inoperable in MODE 1, 2, or 3. | B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4. | 12 hours 36 hours |

(continued)

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|--|--|
| C. One SGT subsystem inoperable during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs. | C.1 Restore SGT subsystem to OPERABLE status. | 31 days |
| D. Required Action and associated Completion Time of Condition C not met. | <p>-----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>D.1 Place OPERABLE SGT subsystem in operation.</p> <p><u>OR</u></p> <p>D.2.1 Suspend movement of recently irradiated fuel assemblies in secondary containment.</p> <p><u>AND</u></p> <p>D.2.2 Initiate action to suspend OPDRVs.</p> | <p>Immediately</p> <p>Immediately</p> <p>Immediately</p> |

(continued)

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|--|--|-----------------|
| E. Two SGT subsystems inoperable during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs. | E.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of recently irradiated fuel assemblies in secondary containment. | Immediately |
| | AND E.2 Initiate action to suspend OPDRVs. | Immediately |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | FREQUENCY |
|--|-----------------------------|
| SR 3.6.4.3.1 Operate each SGT subsystem for ≥ 10 continuous hours with heaters operating. | 31 days |
| SR 3.6.4.3.2 Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP). | In accordance with the VFTP |
| SR 3.6.4.3.3 Verify each SGT subsystem actuates on an actual or simulated initiation signal. | 24 months |



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 252 AND 280

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 November 24, 2008 (Agencywide Document and Management System No. ML083370316), as supplemented by letter dated April 2, 2009, Carolina Power & Light Company (the licensee) requested changes to Renewed Operating Licenses DPR-71 and DPR-62 for the Brunswick Steam Electric Plant (BSEP), Units 1 and 2, respectively. The proposed changes delete Technical Specification (TS) 3.6.3.2, "Containment Atmosphere Dilution (CAD) System," and the associated TS Bases that will result in modifications to containment combustible gas control TS requirements as permitted by Title 10 of the *Code of Federal Regulations* (10 CFR) 50.44, "Combustible gas control for nuclear power reactors."

The licensee stated that the application is consistent with the Nuclear Regulatory Commission (NRC)-approved Revision 2 to Technical Specifications Task Force (TSTF) Improved Standard Technical Specifications Change Traveler 478 (TSTF-478), "BWR [Boiling Water Reactor] Technical Specification Changes that Implement the Revised Rule for Combustible Gas Control." The availability of this TS improvement was announced in the *Federal Register* on November 21, 2007 (72 FR 65610) as part of the consolidated line item improvement process (CLIIP).

The licensee also included proposed revisions to the TS Bases in this application. The licensee stated that adoption of the TS Bases associated with TSTF-478, Revision 2 is an integral part of implementing this TS amendment and the changes to the affected TS Bases pages will be incorporated in accordance with the TS Bases Control Program.

The licensee, in its application, proposed two variations from the TS changes described in TSTF-478, Revision 2, and the NRC staff's model safety evaluation (SE) that was published as part of the CLIIP Notice of Availability. First, the BSEP, Units 1 and 2 TS for the CAD System is TS 3.6.3.2, rather than TS 3.6.3.3 as provided in the TSTF Traveler mark-ups. Second, TSTF-478 Revision 2 also makes TSs and Bases changes to the TS section on drywell cooling system fans. The licensee stated that BSEP, Units 1 and 2 TSs do not include this TS section, therefore, these changes are not needed.

The supplement dated April 2, 2009, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the Nuclear

Regulatory Commission (NRC) staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on February 10, 2009 (74 FR 6664).

2.0 REGULATORY EVALUATION

General Design Criterion 41, "Containment atmosphere cleanup," of Appendix A to 10 CFR Part 50 requires, in part, that systems to control fission products, hydrogen, oxygen, and other substances that may be released into the reactor containment shall be provided as necessary to reduce the concentration and quality of fission products and control the concentration of hydrogen, oxygen, and other substances in the containment atmosphere following postulated accidents to assure that containment integrity is maintained. Section 50.44, "Combustible Gas Control for Nuclear Power Reactors," of 10 CFR provides, among other things, standards for controlling combustible gas that may accumulate in the containment atmosphere during accidents.

Section 50.44 of 10 CFR was revised on September 16, 2003 (68 FR 54123), as a result of studies that led to an improved understanding of combustible gas behavior during severe accidents. The studies confirmed that the hydrogen release postulated from a design-basis Loss of Coolant Accident (LOCA) was not risk significant because it was not large enough to lead to early containment failure, and that the risk associated with hydrogen combustion was from beyond design-basis (i.e., severe) accidents. As a result, requirements for maintaining hydrogen control equipment associated with a design-basis LOCA were eliminated from 10 CFR 50.44. Regulatory Guide 1.7, "Control of Combustible Gas Concentrations in Containment Following a Loss-of-Coolant Accident," Revision 3, dated March 2007, provides detailed guidance that would be acceptable for implementing 10 CFR 50.44.

Section 182a of the Atomic Energy Act requires applicants for nuclear power plant operating licenses to include TS as part of the license application. The TS, among other things, help to ensure the operational capability of structures, systems, and components that are required to protect the health and safety of the public. The NRC's regulatory requirements related to the content of the TS are contained in 10 CFR 50.36, which requires that the TSs include items in the following categories: (1) safety limits, limiting safety systems settings, and limiting control settings; (2) limiting conditions for operation (LCOs); (3) Surveillance Requirements (SR); (4) design features; and (5) administrative controls. As stated in 10 CFR 50.36(c)(2)(i), "Limiting conditions for operation 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." TSTF-478, Revision 2 contains changes to remedial actions permitted by the technical specifications.

2.1 Containment Atmosphere Dilution System

The design purpose of the CAD system is to maintain combustible gas concentrations within the primary containment at or below the flammability limits following a postulated LOCA by diluting hydrogen and oxygen with the addition of nitrogen. The CAD system, however, is considered ineffective at mitigating hydrogen releases from the more risk significant beyond design-basis accidents that could threaten primary containment integrity. The revised 10 CFR 50.44 rule requires systems and measures to be in place to reduce the risks associated with combustible gases from beyond design-basis accidents and eliminates requirements for maintaining

hydrogen and oxygen control equipment associated with a design-basis LOCA. As a result, the CAD system is no longer a mitigating safety system required to be maintained per the revised 10 CFR 50.44 rule. Therefore, TS 3.6.3.2 can be deleted, and the technical basis for allowing the deletion is described below in Section 3.0, Technical Evaluation.

3.0 TECHNICAL EVALUATION

3.1 Containment Atmosphere Dilution System

BWRs with Mark I containment designs have either installed hydrogen recombiners or CAD systems to meet requirements for combustible gas control following a design-basis LOCA. The hydrogen recombiners and the CAD system perform similar functions for post-LOCA gas control by decreasing the hydrogen concentration. Hydrogen recombiners function to reduce the combustible gas concentration in the primary containment by recombining hydrogen and oxygen to form water vapor. The CAD system functions to maintain combustible gas concentrations within the primary containment at or below the flammability limits following a postulated LOCA by diluting hydrogen and oxygen by adding nitrogen to the mixture. In the case of BSEP, a CAD system is installed as part of a Containment Atmospheric Control System. There are no installed hydrogen recombiners.

Studies performed in support of the 10 CFR 50.44 rule change (68 FR 54123; September 16, 2003) confirmed that the hydrogen release postulated from a design-basis LOCA was not risk significant because it was not large enough to lead to early containment failure, and that the risk associated with hydrogen combustion was from beyond design-basis (i.e., severe) accidents. As a result, the revised 10 CFR 50.44 rule eliminates requirements for maintaining hydrogen control equipment associated with a design-basis LOCA and requires systems and measures to be in place to reduce the risks associated with hydrogen combustion from beyond design-basis accidents.

The CAD system maintains combustible gas concentrations within the primary containment at or below the flammability limits following a LOCA, however, this system, as discussed in the 10 CFR 50.44 rule change was shown to be ineffective at mitigating hydrogen releases from the more risk significant beyond design-basis accidents that could threaten primary containment integrity, and is no longer required to address a design-basis LOCA. Therefore, the staff finds that the deletion of BSEP TS 3.6.3.2, CAD System, is acceptable.

The licensee stated that the BSEP TSs do not include the TS section on drywell cooling system fans, therefore, TSTF-478 Revision 2 TSs and Bases changes to this section are not needed. The NRC staff finds that this deviation from the Model SE does not affect the acceptability of the balance of the amendment.

4.0 STATE CONSULTATION

In accordance with the NRC'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 NRC has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (74 FR 6664; February 10, 2009). 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 NRC 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 NRC'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 Contributors: Victor Cusumano
Matt Hamm

Date: April 13, 2009

April 13, 2009

Mr. Benjamin Waldrep, 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 ADOPTION OF TSTF-478, REVISION 2, "BWR TECHNICAL SPECIFICATION CHANGES THAT IMPLEMENT THE REVISED RULE FOR COMBUSTIBLE GAS CONTROL" (TAC NOS. ME0168 AND ME0169)

Dear Mr. Waldrep:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 252 to Renewed Facility Operating License No. DPR-71, and Amendment No. 280 to Renewed Facility Operating License No. DPR-62, Brunswick Steam Electric Plant, Units 1 and 2, respectively. The amendments are in response to your application dated November 24, 2008 (Agencywide Documents Access and Management System Accession No. ML083370316), as supplemented by letter dated April 2, 2009. The amendments delete Technical Specification (TS) 3.6.3.2, "Containment Atmosphere Dilution (CAD) System," and the associated TS Bases that will result in modifications to containment combustible gas control TS requirements as permitted by Section 50.44 of Title 10 of the *Code of Federal Regulations*. This change is consistent with NRC-approved Revision 2 of Technical Specifications Task Force (TSTF) Improved Standard Technical Specifications Change Traveler 478 (TSTF-478), "BWR [Boiling Water Reactor] Technical Specification Changes that Implement the Revised Rule for Combustible Gas Control." The availability of TSTF-478 was announced in the *Federal Register* on November 21, 2007 (72 FR 65610) as part of the consolidated line item improvement process.

A copy of the related safety evaluation is also enclosed. A notice of issuance will be included in the NRC'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. 252 to
Renewed License No. DPR-71
 2. Amendment No. 280 to
Renewed License No. DPR-62
 3. Safety Evaluation
- cc w/enclosures: Distribution via ListServ

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|--------|-----------|-----------|----------|------------------------------|----------|
| NAME | FSaba | CSola | RElliott | BHarris (NLO w/ comments) | TBoyce |
| DATE | 4/7/09 | 4/13/09 | 02/10/09 | 4/10/09 | 4/13/09 |

* by memo

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