Progress Energy

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JAN 2 7 2005

SERIAL: BSEP 05-0008
TSC-2003-04

10 CFR 50.90

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
Docket Nos. 50-325 and 50-324/License Nos. DPR-71 and DPR-62
Request for License Amendments - Technical Specification Improvement to Revise Control Rod Scram Time Testing Frequency, Consolidated Line Item Improvement Process (TSTF-460)

Reference: *Federal Register* Notice: Notice of Availability of Model Application Concerning Technical Specifications Improvement Regarding Revision to the Control Rod Scram Time Testing Frequency in STS 3.1.4, "Control Rod Scram Times" for General Electric Boiling Water Reactors Using the Consolidated Line Item Improvement Process, published August 23, 2004 (69 FR 51864)

Ladies and Gentlemen:

In accordance with the provisions of Section 50.90 of Title 10 of the *Code of Federal Regulations* (10 CFR), Carolina Power & Light Company, now doing business as Progress Energy Carolinas, Inc. (PEC), is submitting a request for an amendment to the Technical Specifications (TS) for Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2.

The proposed amendments would revise TS testing frequency for the surveillance requirement (SR) in TS 3.1.4, "Control Rod Scram Times," from "120 days cumulative operation in MODE 1" to "200 days cumulative operation in MODE 1." These changes are based on TS Task Force (TSTF) change traveler TSTF-460, Revision 0, that has been approved generically for the Boiling Water Reactor (BWR) Standard TS, NUREG-1433 (BWR/4) and NUREG-1434 (BWR/6). A notice announcing the availability of this proposed TS change using the consolidated line item improvement process was published in the *Federal Register* on August 23, 2004 (69 FR 51864).

Enclosure 1 provides a description of the proposed change and confirmation of applicability. Enclosures 2 and 3 provide the existing Unit 1 and 2 TS pages, marked-up to show the proposed change. For convenience, Enclosures 4 and 5 provide typed versions of the Unit 1 and Unit 2 TS, respectively. Enclosure 6 provides a marked-up TS Bases page

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for Unit 1. This page is being submitted for information only and do not require issuance by the NRC. Enclosure 7 contains a list of regulatory commitments.

PEC requests approval of the proposed license amendment by June 1, 2005, with the amendment being implemented within 60 days.

In accordance with 10 CFR 50.91, a copy of this application is being provided to the designated official for the State of North Carolina.

Please refer any questions regarding this submittal to Mr. Edward T. O'Neil, Manager - Support Services, at (910) 457-3512.

Sincerely,

Cornelius J. Gannon

WRM/wrm

Enclosures:
1. Description and Assessment
2. Marked-up Technical Specification Page - Unit 1
3. Marked-up Technical Specification Page - Unit 2
4. Typed Technical Specification Page - Unit 1
5. Typed Technical Specification Page - Unit 2
6. Marked-up Technical Specification Bases Page - Unit 1 (For Information Only)
7. List of Regulatory Commitments

Cornelius J. Gannon, having been first duly sworn, did depose and say that the information contained herein is true and correct to the best of his information, knowledge and belief; and the sources of his information are officers, employees, and agents of Carolina Power & Light Company.

Dean S. Mason
Notary (Seal)

My commission expires: 5-23-09

cc (with enclosures):

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Description and Assessment

1.0 INTRODUCTION

The proposed license amendments revise the required testing frequency for Surveillance Requirement (SR) 3.1.4.2 in Technical Specification (TS) 3.1.4, "Control Rod Scram Times." A notice announcing the availability of this proposed TS change using the consolidated line item improvement process (CLIIP) was published in the *Federal Register* on August 23, 2004 (i.e., 69 FR 51864).

2.0 PROPOSED CHANGE

These changes are based on TS Task Force (TSTF) change traveler TSTF-460, Revision 0, that has been approved generically for the boiling water reactor (BWR) Standard TS, NUREG-1433 (BWR/4) and NUREG-1434 (BWR/6). The required frequency of SR 3.1.4.2, control rod scram time testing, is changed from "120 days cumulative operation in MODE 1" to "200 days cumulative operation in MODE 1."

3.0 BACKGROUND

The background for this application is adequately addressed by the CLIIP Notice of Availability published on August 23, 2004 (i.e., 69 FR 51864), and TSTF-460.

4.0 REGULATORY REQUIREMENTS AND GUIDANCE

The applicable regulatory requirements and guidance associated with this application are adequately addressed by the CLIIP Notice of Availability published on August 23, 2004 (i.e., 69 FR 51864), and TSTF-460.

5.0 TECHNICAL ANALYSIS

Carolina Power & Light Company, now doing business as Progress Energy Carolinas, Inc. (PEC), has reviewed the safety evaluation published on August 23, 2004 (i.e., 69 FR 51864) as part of the CLIIP Notice of Availability. This verification included a review of the NRC staff's safety evaluation and the supporting information provided to support TSTF-460. PEC has concluded that the justifications presented in the TSTF proposal and the safety evaluation prepared by the NRC staff are applicable to the Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2, and justify this amendment for the incorporation of the changes to the BSEP, Unit 1 and 2 TS.

As described in the CLIIP model safety evaluation, part of the justification for the change in surveillance frequency is the high reliability of the BSEP, Unit 1 and 2, Control Rod Drive System. As requested in the CLIIP Notice of Availability published on August 23,

2004 (i.e., 69 FR 51864), the historical performance of the Control Rod Drive System at BSEP, Units 1 and 2, is described below.

In 1996, all BSEP Unit 1 scram solenoid pilot valve exhaust port diaphragms were replaced with new exhaust port diaphragms composed of Buna-N material. In 1997, BSEP Unit 2 exhaust port diaphragms were replaced with new diaphragms made of Buna-N material. The exhaust port diaphragms were scheduled to be replaced on both units after a 10-year preventative maintenance interval.

On July 25, 1998, Improved Technical Specifications (ITS) were implemented at BSEP, Units 1 and 2. With adoption of the ITS, criteria were established for the detection of slow control rods. Prior to implementing the ITS, the TS had different criteria using maximum and average scram times for detecting slow control rods. Since implementation of the ITS, the control rod insertion time test results at BSEP, Units 1 and 2, have shown the control rod scram rates to be highly reliable.

For BSEP Unit 1, during the most recent 6-1/2 years of operation, out of 2,083 scram time tests, no "slow rods" were identified. For BSEP Unit 2, during the most recent 6-1/2 years of operation, out of 1,863 scram time tests, two "slow rods" were identified. Due to the two slow rods found on Unit 2 during 2001 to 2003 time period, selected scram solenoid pilot valves were disassembled, primarily on Unit 2, and the Buna-N exhaust diaphragms removed for evaluation. Hardening of the diaphragms was found for those removed, although the hardening was not as severe as observed at other boiling water reactors. Also, the hardening of the diaphragms on the slow rods was not as severe as diaphragms removed from control rods that were slower than the core average scram times, but still within TS limits. Core average scram times for BSEP Unit 2 were not impacted significantly by these two slow rods, based on the small, localized population of scram solenoid pilot valve diaphragms affected.

During the BSEP Unit 1 2004 refueling outage, all Buna-N scram solenoid pilot valve diaphragms (i.e., both inlet and exhaust) were replaced with diaphragms using Viton 515A/B. The Unit 1 core average scram times have improved by approximately 0.015 seconds to the 5% notch position since the change to the Viton 515A/B scram solenoid pilot valve diaphragms. This data is drawn from four sets of scram times measured since the Viton 515A/B diaphragm installation, as compared to the average scram times from 1998 until the Unit 1 2004 refueling outage.

The BSEP Unit 2 Buna-N scram solenoid pilot valve diaphragms are being replaced with Viton 515A/B during the upcoming Spring 2005 refueling outage.

As discussed in Reference 2, recent operating experience from several boiling water reactors that had scram solenoid pilot valve exhaust port diaphragms made of Buna-N material indicated the 10 year preventive maintenance interval was not realistic. During scram testing, slow control rod insertion times were observed due to the exhaust port

diaphragm sticking momentarily at the outset of the scram signal. As a result, the control rods did not meet Technical Specification requirements for scram times.

Based on the results gained from replacing the exhaust diaphragms made of Buna-N material with exhaust diaphragms made of the Viton 515A/B, PEC is confident that future scram time testing results will continue to satisfy the scram time performance criteria discussed in the CLIIP model safety evaluation.

6.0 COMMITMENTS

As discussed in the CLIIP model safety evaluation published in the *Federal Register* on August 23, 2004 (i.e., 69 FR 51864) for this TS improvement, PEC is making the following regulatory commitment with the understanding that the NRC will include it as a condition for the issuance of the requested amendments:

> PEC will incorporate the revised acceptance criterion value of 7.5 percent into the TS Bases for BSEP, Units 1 and 2 in accordance with the Bases Control Program described in TS 5.5.10.

PEC will make the supporting changes to the TS Bases in accordance with TS 5.5.10, "Technical Specification (TS) Bases Control Program." Enclosure 5 of this letter provides marked-up TS Bases pages for Unit 1. These pages are being submitted for information only and do not require issuance by the NRC.

7.0 NO SIGNIFICANT HAZARDS CONSIDERATION

PEC has reviewed the proposed no significant hazards consideration determination published on August 23, 2004 (i.e., 69 FR 51864), as part of the CLIIP. PEC has concluded that the proposed determination presented in the notice is applicable to BSEP, Units 1 and 2 and the determination is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

8.0 ENVIRONMENTAL EVALUATION

PEC has reviewed the environmental evaluation included in the model safety evaluation published on August 23, 2004 (i.e., 69 FR 51864) as part of the CLIIP. PEC has concluded that the staff's findings presented in that evaluation are applicable to BSEP, Units 1 and 2 and the evaluation is hereby incorporated by reference for this application.

9.0 PRECEDENT

This application is being made in accordance with the CLIIP. PEC is not proposing variations or deviations from the TS changes described in TSTF-460 or the NRC staff's model safety evaluation published on August 23, 2004 (i.e., 69 FR 51864).

10.0 REFERENCES

1. *Federal Register* Notice: Notice of Availability of Model Application Concerning Technical Specifications Improvement Regarding Revision to the Control Rod Scram Time Testing Frequency in STS 3.1.4, "Control Rod Scram Times" for General Electric Boiling Water Reactors Using the Consolidated Line Item Improvement Process, published August 23, 2004, 69 FR 51864.

2. NRC Information Notice 2003-17, "Reduced Service Life of Automatic Switch Company (ASCO) Solenoid Valves With Buna-N Material," dated September 29, 2003, ADAMS Accession Number ML032681003.

Marked-up Technical Specification Page - Unit 1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.4.2	Verify, for a representative sample, each tested control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	~~120~~ 200 days cumulative operation in MODE 1
SR 3.1.4.3	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with any reactor steam dome pressure.	Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect scram time
SR 3.1.4.4	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	Prior to exceeding 40% RTP after fuel movement within the affected core cell AND Prior to exceeding 40% RTP after work on control rod or CRD System that could affect scram time

Marked-up Technical Specification Page - Unit 2

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.4.2	Verify, for a representative sample, each tested control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	~~120~~ 200 days cumulative operation in MODE 1
SR 3.1.4.3	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with any reactor steam dome pressure.	Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect scram time
SR 3.1.4.4	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	Prior to exceeding 40% RTP after fuel movement within the affected core cell AND Prior to exceeding 40% RTP after work on control rod or CRD System that could affect scram time

Typed Technical Specification Page - Unit 1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.4.2	Verify, for a representative sample, each tested control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	200 days cumulative operation in MODE 1
SR 3.1.4.3	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with any reactor steam dome pressure.	Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect scram time
SR 3.1.4.4	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	Prior to exceeding 40% RTP after fuel movement within the affected core cell AND Prior to exceeding 40% RTP after work on control rod or CRD System that could affect scram time

Typed Technical Specification Page - Unit 2

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.4.2	Verify, for a representative sample, each tested control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	200 days cumulative operation in MODE 1
SR 3.1.4.3	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with any reactor steam dome pressure.	Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect scram time
SR 3.1.4.4	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure ≥ 800 psig.	Prior to exceeding 40% RTP after fuel movement within the affected core cell AND Prior to exceeding 40% RTP after work on control rod or CRD System that could affect scram time

Marked-up Technical Specification Bases Page - Unit 1
(For Information Only)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.1.4.2

Additional testing of a sample of control rods is required to verify the continued performance of the scram function during the cycle. A representative sample contains at least 10% of the control rods. The sample remains representative if no more than ~~20%~~ of the control rods in the sample tested are determined to be "slow." With more than ~~20%~~ of the sample declared to be "slow" per the criteria in Table 3.1.4-1, additional control rods are tested until this ~~20%~~ criterion (i.e., ~~20%~~ of the entire sample size) is satisfied, or until the total number of "slow" control rods (throughout the core, from all surveillances) exceeds the LCO limit. For planned testing, the control rods selected for the sample should be different for each test. This test is performed for each control rod in the sample from its fully withdrawn position. Data from inadvertent scrams should be used whenever possible to avoid unnecessary testing at power, even if the control rods with data may have been previously tested in a sample. The ~~120~~ day Frequency is based on operating experience that has shown control rod scram times do not significantly change over an operating cycle. This Frequency is also reasonable based on the additional Surveillances done on the CRDs at more frequent intervals in accordance with LCO 3.1.3 and LCO 3.1.5, "Control Rod Scram Accumulators."

7.5%

200

SR 3.1.4.3

When work that could affect the scram insertion time is performed on a control rod or the CRD System, testing must be done to demonstrate that each affected control rod retains adequate scram performance over the range of applicable reactor pressures from zero to the maximum permissible pressure. The scram testing must be performed once before declaring the control rod OPERABLE. The required scram time testing must demonstrate the affected control rod is still within acceptable limits. This test is performed for each affected control rod from its fully withdrawn position. In lieu of actually initiating a scram for each affected control rod, testing that adequately demonstrates the scram times are within acceptable limits is allowed to satisfy this SR. The test may include any series of sequential, overlapping, or total steps so the entire scram

(continued)

List of Regulatory Commitments

The following table identifies those actions committed to by Carolina Power & Light Company, now doing business as Progress Energy Carolinas, Inc. (PEC), in this document. Any other actions discussed in the submittal represent intended or planned actions by PEC. They are described for the NRC's information and are not regulatory commitments. Please notify the Manager - Support Services at the Brunswick Steam Electric Plant of any questions regarding this document or any associated regulatory commitments.

Commitment	Committed date or outage
1. PEC will incorporate the revised acceptance criterion value of 7.5 percent into the TS Bases for BSEP, Units 1 and 2 in accordance with the Bases Control Program described in TS 5.5.10.	With implementation of the requested amendments.