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May 17, 2005

SERIAL: BSEP 05-0060  
TSC-2005-03

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. 50-525 and 50-324/License Nos. DPR-71 and DPR-62  
Request for License Amendment  
Technical Specification 3.4.5, "RCS Leakage Detection Instrumentation"

Reference: Letter from David H. Hinds to the U. S. Nuclear Regulatory Commission  
(Serial: BSEP 05-0059), "Request for Notice of Enforcement Discretion  
Technical Specification 3.4.5, "RCS Leakage Detection Instrumentation,"  
dated May 13, 2005

Ladies and Gentlemen:

In accordance with the Code of Federal Regulations, Title 10, Part 50.90, Carolina Power & Light Company, now doing business as Progress Energy Carolinas, Inc. (PEC), is requesting a revision to the Technical Specifications (TSs) for the Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2. The proposed change replaces the existing requirement of TS 3.4.5, "RCS Leakage Detection Instrumentation," Required Action D.1, to enter Limiting Condition for Operation (LCO) 3.0.3 if required leakage detection systems are inoperable with the requirement to be in Mode 3 within 12 hours and Mode 4 within 36 hours. An evaluation of the proposed license amendment is provided in Enclosure 1.

On May 13, 2005, PEC submitted a written Notice of Enforcement Discretion request to waive compliance with Required Action D.1 of TS 3.4.5 for Unit 1. In this request, PEC committed to submit a follow-up amendment request, addressing the existing Required Action D.1 of TS 3.4.5, by May 17, 2005. This amendment request fulfills the commitment. As discussed in NRC Inspection Manual Part 9900, "Operations - Notices of Enforcement Discretion," and to alleviate the TS requirement which resulted in the NOED request, exigent processing of the proposed amendment is requested.

PEC has evaluated the proposed change in accordance with 10 CFR 50.91(a)(1), using the criteria in 10 CFR 50.92(c), and determined that this change involves no significant hazards considerations.

PEC is providing, in accordance with 10 CFR 50.91(b), a copy of the proposed license amendment to the designated representative for the State of North Carolina.

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In order to allow time for orderly incorporation into copies of the TSs, PEC requests that the proposed license amendment, once approved by the NRC, be issued with an effective date of 60 days following approval.

No regulatory commitments are contained in this letter. Please refer any questions regarding this submittal to Mr. Edward T. O'Neil, Manager - Support Services, at (910) 457-3512.

I declare, under penalty of perjury, that the foregoing is true and correct. Executed on May 17, 2005.

Sincerely,



Cornelius J. Gannon

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Enclosures:

1. Evaluation of License Amendment Request
2. Marked-up Technical Specification Page - Unit 1
3. Typed Technical Specification Page - Unit 1
4. Typed Technical Specification Page - Unit 2
5. Marked-up Technical Specification Bases Page - Unit 1 (For Information Only)

cc (with enclosures):

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**Evaluation of License Amendment Request**

Subject: Request for License Amendment  
 Technical Specification 3.4.5, "RCS Leakage Detection Instrumentation"

**1.0 Description**

This letter is a request by Carolina Power & Light Company, now doing business as Progress Energy Carolinas, Inc. (PEC), to amend Operating Licenses DPR-71 and DPR-62 for the Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2.

The proposed change replaces the existing requirement of Technical Specification (TS) 3.4.5, Required Action D.1, to enter Limiting Condition for Operation (LCO) 3.0.3 if required Reactor Coolant System (RCS) leakage detection systems are inoperable. In lieu of entry into LCO 3.0.3, the unit will be placed in Mode 3 within 12 hours and in Mode 4 within 36 hours.

**2.0 Proposed Change**

The proposed change replaces the existing requirement of TS 3.4.5, Required Action D.1, to enter LCO 3.0.3 if required leakage detection systems are inoperable with the requirement to be in Mode 3 within 12 hours and Mode 4 within 36 hours. This is accomplished by deleting Condition D and including the "all required leakage detection systems inoperable" statement in Condition C. The following table illustrates the proposed changes.

Proposed Technical Specification Change		
Existing Requirements - Conditions C and D of TS 3.4.5		
CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3.	12 hours
	<u>AND</u> C.2 Be in MODE 4.	36 hours
D. All required leakage detection systems inoperable.	D.1 Enter LCO 3.0.3.	Immediately

<b>Proposed Requirement - Condition C of TS 3.4.5</b>		
<b>CONDITION</b>	<b>REQUIRED ACTION</b>	<b>COMPLETION TIME</b>
C. Required Action and associated Completion Time of Condition A or B not met.  <u>OR</u>  All required leakage detection systems inoperable.	C.1 Be in MODE 3.	12 hours
	<u>AND</u> C.2 Be in MODE 4.	36 hours

For convenience, Enclosure 2 contains a marked-up version of the Unit 1 TSs showing the proposed changes. Since TS Section 3.4.5 for Unit 1 and Unit 2 are identical, only the mark-up for Unit 1 is provided. Enclosures 3 and 4 provide typed versions of the Unit 1 and Unit 2 TSs, respectively. These typed TS pages are to be used for issuance of the proposed amendment.

PEC will make supporting changes to the TS Bases in accordance with TS 5.5.10, "Technical Specifications (TS) Bases Control Program." Enclosure 5 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.

### 3.0 Background

On May 13, 2005, PEC submitted a written Notice of Enforcement Discretion (NOED) (i.e., Reference 1) request to waive compliance with Required Action D.1 of TS 3.4.5 for Unit 1. The need for the NOED arose when Emergency Bus E1 tripped unexpectedly, ultimately resulting in inoperability of the Reactor Coolant System (RCS) leakage detection systems. The requested NOED waived compliance with Required Action D.1 of TS 3.4.5. In lieu of the requirements of TS 3.4.5, Required Action D.1, PEC proposed Unit 1 continue to adhere to the requirements of TS 3.8.7, "Distribution Systems - Operating," which required the unit to be in Mode 3 within 12 hours and Mode 4 within 36 hours. The verbal NOED was verbally granted by the NRC on May 12, 2005, in response to PEC's May 12, 2005, verbal NOED request. On May 12, 2005, Unit 1 restored operability to the RCS leakage detection systems and exited TS 3.4.5.

In the May 13, 2005, written NOED request, PEC committed to submit a follow-up amendment request, addressing the existing Required Action D.1 of TS 3.4.5, by May 17, 2005. This amendment request fulfills the commitment. As discussed in NRC Inspection Manual Part 9900, "Operations - Notices of Enforcement Discretion," and to alleviate the TS requirement which resulted in the NOED request, exigent processing of the proposed amendment is requested.

Section 5.2.5, "Detection of Leakage Through Reactor Coolant System Boundary," of the BSEP Updated Final Safety Analysis Report (UFSAR) provides details associated with the leakage detection systems in use at BSEP. TS 3.4.5 establishes LCOs for three of these systems: (1) the drywell floor drain sump flow monitoring system, (2) the primary containment atmosphere particulate monitoring system, and (3) the primary containment atmosphere gaseous monitoring system. Each of the TS 3.4.5 required leakage detection systems is designed with the capability of detecting leakage less than the leakage rate limits established in TS 3.4.4, "RCS Operational Leakage," and providing appropriate alarm and/or indication of excess leakage in the control room.

As discussed in the UFSAR, drywell pressure, drywell temperature, cooling water temperature to and from the primary containment atmosphere coolers, and reactor water level also provide a means for detecting leaks within the primary containment.

The purpose of this amendment request is to alleviate the unnecessarily restrictive shutdown requirement of TS 3.4.5, Required Action D.1, which led to the need to seek enforcement discretion from this requirement for Unit 1.

#### 4.0 Technical Analysis

The existing TS 3.4.5, Required Action D.1, places the plant in Mode 2 within 7 hours, Mode 3 within 13 hours, and Mode 4 within 37 hours (i.e., the LCO 3.0.3 shutdown completion times) if all required leakage detection systems are inoperable. The proposed amendment would place the plant in Mode 3 within 12 hours and Mode 4 within 36 hours under the same conditions. This is essentially the same completion times as currently exist, with the exception of eliminating the 7 hour to Mode 2 requirement. The net effect would be to allow a unit to operate for five additional hours in Mode 1 (i.e., 12 hours to be in Mode 3 versus 7 hours to be in Mode 2) with no operable TS required leakage detection systems. Additionally, the Modes of Applicability for TS 3.4.5 are Modes 1, 2, and 3. The proposed change results in exiting the Modes of Applicability for RCS leakage detection instrumentation one hour earlier (i.e., 36 hours to be in Mode 4 versus 37 hours per the existing TS 3.4.5, Required Action D.1).

The proposed shutdown requirements and completion times for inoperability of the TS 3.4.5 required leakage detection systems will remain as conservative as those currently imposed by TS 3.4.4 for actual RCS operational leakage in excess of TS requirements. TS 3.4.4, Required Action A.1, allows 8 hours to reduce RCS leakage to within limits if actual leakage occurs in excess of the established TS limits. If this is not accomplished or if pressure boundary leakage exists, the plant must be brought to Mode 3 within 12 hours and Mode 4 within 36 hours in accordance with TS 3.4.4, Required Actions B.1 and B.2. The Bases for Required Actions B.1 and B.2 state that allowed completion times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant safety systems.

The Bases for TS 3.4.5, Required Action D.1, states that with all required RCS leakage detection monitors inoperable, no required automatic means of monitoring leakage are available, and immediate plant shutdown in accordance with LCO 3.0.3 is required. However, loss of all TS required RCS leakage monitoring capability is clearly a less degraded condition than experiencing actual RCS leakage in excess of TS established limits. In addition, although not required by TSs, drywell pressure, drywell temperature, cooling water temperature to and from the primary containment atmosphere coolers, and reactor water level also provide a means for detecting leaks within the primary containment. In the unlikely event of increased RCS leakage, abnormal operating procedure 0AOP-014, "Abnormal Primary Containment Conditions," provides direction to control room operators regarding response to symptoms such as increased drywell temperature and pressure. In addition, Emergency Core Cooling System (ECCS), Reactor Protection System (RPS) and primary and secondary containment isolation automatic actuations all occur based on high drywell pressure and/or low vessel water level. These systems continue to be available to mitigate the consequences of a loss-of-coolant event.

In summary, the proposed change eliminates the unnecessarily restrictive shutdown requirements of entering LCO 3.0.3 when all TS required leakage detection systems are inoperable while maintaining the existing level of safety by imposing shutdown requirements that are as conservative as those currently imposed by TS 3.4.4 for actual RCS operational leakage in excess of TS requirements. The net effect of this change is to allow a unit to operate for five additional hours in Mode 1, while exiting the Modes of Applicability for RCS leakage detection instrumentation one hour earlier (i.e., 36 hours to be in Mode 4 versus 37 hours per the existing TS 3.4.5, Required Action D.1). Elimination of the intermediate 7 hours to Mode 2 requirement, imposed by LCO 3.0.3, allows the unit to reach the Mode 3 from full power conditions in an orderly manner and without challenging plant safety systems.

## 5.0 Regulatory Safety Analysis

### 5.1 No Significant Hazards Consideration

PEC has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

The proposed change replaces the existing requirement of TS 3.4.5, Required Action D.1 to enter LCO 3.0.3 if required leakage detection systems are inoperable with the requirement to be in Mode 3 within 12 hours and Mode 4 within 36 hours. This is

accomplished by deleting Condition D and including the "all required leakage detection systems inoperable" statement in Condition C.

The proposed change does not involve physical changes to any plant structure, system, or component. As a result, no new failure modes of the RCS leakage detection systems are being introduced. Additionally, the RCS leakage detection systems have no impact on any initiating event frequency. Therefore, the proposed change cannot increase in the probability a previously evaluated accident.

The consequences of a previously analyzed accident are dependent on the initial conditions assumed for the analysis, the behavior of the fuel during the analyzed accident, the availability and successful functioning of the equipment assumed to operate in response to the analyzed event, and the setpoints at which these actions are initiated. The RCS leakage detection systems do not perform an accident mitigating function. ECCS, RPS, and primary and secondary containment isolation actuations all occur based on high drywell pressure and/or low vessel water level. The proposed change has no impact on any setpoints or functions related to these actuations. Therefore, the proposed change cannot increase in the consequences a previously evaluated accident.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

The proposed change eliminates the unnecessarily restrictive shutdown requirements of entering LCO 3.0.3 when all TS required leakage detection systems are inoperable. No installed equipment is being operated in a different manner. There is no alteration to the parameters within which the plant is normally operated or in the setpoints that initiate protective or mitigative actions. As a result no new failure modes are being introduced. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No

The proposed change maintains the existing level of safety by imposing shutdown requirements that are as conservative as those currently imposed by TS 3.4.4 for actual RCS operational leakage in excess of TS requirements. The net effect of this change is to allow a unit to operate for five additional hours in Mode 1 with no operable TS required leakage detection systems, while exiting the Mode of Applicability for RCS leakage detection instrumentation one hour earlier (i.e., 36 hours to be in Mode 4 versus 37 hours per the existing TS 3.4.5, Required Action D.1). Elimination of the intermediate 7 hours to



Mode 2 requirement, imposed by LCO 3.0.3, allows the unit to reach the Mode 3 from full power conditions in an orderly manner and without challenging plant safety systems. Therefore, the proposed change does not result in a significant reduction in the margin of safety.

Based on the above, PEC concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

## 5.2 Applicable Regulatory Requirements/Criteria

The BSEP design was reviewed for construction under the "General Design Criteria for Nuclear Power Plant Construction" issued for comment by the Atomic Energy Commission in July 1967 and is committed to meet the intent of the General Design Criteria (GDC), published in the Federal Register on May 21, 1971 as Appendix A to 10 CFR Part 50. Criterion 30, "Quality of reactor coolant pressure boundary," requires that means be provided for detecting and, to the extent practical, identifying the location of the source of reactor coolant leakage.

Regulatory Guide (RG) 1.45, "Reactor Coolant Pressure Boundary Leakage Detection Systems" describes acceptable methods of implementing this requirement with regard to the selection of leakage detection systems for the reactor coolant boundary. The position of RG 1.45 is that at least three different detection methods should be employed. Two of these methods should be: (1) sump level and flow monitoring and, (2) airborne particulate radioactivity monitoring. The third method may involve either monitoring of condensate flow rate from air coolers or monitoring of gaseous radioactivity. The regulatory guide recommends that the sensitivity and response time of each leakage detection system employed for unidentified leakage should be adequate to detect a leakage rate, or its equivalent, of one gallon per minute (gpm) in less than one hour.

The proposed change eliminates the unnecessarily restrictive shutdown requirements of entering LCO 3.0.3 when all TS required leakage detection systems are inoperable. The proposed change does not involve physical changes to the RCS leakage detection systems. The RCS leakage detection systems are not being operated in a different manner as a result of the proposed change. The design function of the RCS leakage detection systems is not affected by the proposed change.

Based on the considerations discussed above: (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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

## **6.0 Environmental Considerations**

10 CFR 51.22(c)(9) identifies certain licensing and regulatory actions, which are eligible for categorical exclusion from the requirement to perform an environmental assessment. A proposed amendment to an operating license for a facility does not require an environmental assessment if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant hazards consideration; (2) result in a significant change in the types or significant increase in the amounts of any effluents that may be released offsite; or (3) result in a significant increase in individual or cumulative occupational radiation exposure.

Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

## **7.0 References**

1. Letter from David H. Hinds to the U. S. Nuclear Regulatory Commission (Serial: BSEP 05-0059), "Request for Notice of Enforcement Discretion Technical Specification 3.4.5, "RCS Leakage Detection Instrumentation," dated May 13, 2005

**BSEP 05-0060**  
**Enclosure 2**

**Marked-up Technical Specification Page - Unit 1**

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required primary containment atmosphere radioactivity monitoring system inoperable.	-----NOTE----- LCO 3.0.4 is not applicable.	
	B.1 Analyze grab samples of primary containment atmosphere.	Once per 12 hours
	<u>AND</u> B.2 Restore required primary containment atmosphere radioactivity monitoring system to OPERABLE status.	30 days
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3.	12 hours
	<u>AND</u> C.2 Be in MODE 4.	36 hours
<del>D. All required leakage detection systems inoperable.</del>	<del>D.1 Enter LCO 3.0.3.</del>	<del>Immediately</del>

OR

All required leakage detection systems inoperable.

**BSEP 05-0060**  
**Enclosure 3**

**Typed Technical Specification Page - Unit 1**

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. Required primary containment atmosphere radioactivity monitoring system inoperable.</p>	<p>-----NOTE----- LCO 3.0.4 is not applicable. -----</p>	
	<p>B.1 Analyze grab samples of primary containment atmosphere.</p> <p><u>AND</u></p> <p>B.2 Restore required primary containment atmosphere radioactivity monitoring system to OPERABLE status.</p>	
<p>C. Required Action and associated Completion Time of Condition A or B not met.</p> <p><u>OR</u></p> <p>All required leakage detection systems inoperable.</p>	<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>

**BSEP 05-0060**  
**Enclosure 4**

**Typed Technical Specification Page - Unit 2**

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. Required primary containment atmosphere radioactivity monitoring system inoperable.</p>	<p>-----NOTE-----                      LCO 3.0.4 is not applicable.                      -----</p> <p>B.1 Analyze grab samples of primary containment atmosphere.</p> <p><u>AND</u></p> <p>B.2 Restore required primary containment atmosphere radioactivity monitoring system to OPERABLE status.</p>	<p>Once per 12 hours</p> <p>30 days</p>
<p>C. Required Action and associated Completion Time of Condition A or B not met.</p> <p><u>OR</u></p> <p>All required leakage detection systems inoperable.</p>	<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>



**BSEP 05-0060**  
**Enclosure 5**

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

BASES

ACTIONS

B.1 and B.2 (continued)

The Required Actions are modified by a Note that states that the provisions of LCO 3.0.4 are not applicable. As a result, a MODE change is allowed when both the gaseous and particulate primary containment atmosphere radioactivity monitoring channels are inoperable. This allowance is provided because other instrumentation is available to monitor RCS LEAKAGE.

C.1 and C.2

If any Required Action and associated Completion Time of Condition A or B cannot be met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to perform the actions in an orderly manner and without challenging plant systems.

~~D.1~~

~~With all required monitors inoperable, no required automatic means of monitoring LEAKAGE are available, and immediate plant shutdown in accordance with LCO 3.0.3 is required.~~

or with all required monitors inoperable

SURVEILLANCE REQUIREMENTS

SR 3.4.5.1

This SR is for the performance of a CHANNEL CHECK of the required primary containment atmosphere radioactivity monitoring system. The check gives reasonable confidence that the channel is operating properly. The Frequency of 12 hours is based on instrument reliability and is reasonable for detecting off normal conditions.

SR 3.4.5.2

This SR is for the performance of a CHANNEL FUNCTIONAL TEST of the required RCS leakage detection instrumentation. The test ensures that the monitors can perform their function in the desired manner. The test also verifies, for the radioactivity monitoring channels only, the required alarm setpoint and relative accuracy of the instrument string.

(continued)