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DEC 09 2003

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U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
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Subject: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
Docket Nos. 50-325 and 50-324/License Nos. DPR-71 and DPR-62
180-Day Response to Generic Letter 2003-01
Control Room Habitability

Reference: Letter from John S. Keenan to the United States Nuclear Regulatory
Commission (Serial: BSEP 03-116) "Sixty-Day Response to Generic
Letter 2003-01, Control Room Habitability," dated August 11, 2003

Ladies and Gentlemen:

On June 12, 2003, the NRC issued Generic Letter 2003-01, "Control Room Habitability," which requested licensees to submit information demonstrating that control rooms comply with the current licensing and design bases, and applicable regulatory requirements, and that suitable design, maintenance and testing control measures are in place for maintaining this compliance. The generic letter requested that this information be provided within 180 days or, if unable to meet this schedule, notification be made within 60 days.

Progress Energy Carolinas, Inc. provided a 60-day response to Generic Letter 2003-01 in the referenced letter for the Brunswick Steam Electric Plant, (BSEP) Unit Nos. 1 and 2. Enclosure 1 provides the 180-day response to Generic Letter 2003-01 for BSEP. Enclosure 2 provides a list of regulatory commitments made in this letter.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Cornelius J. Gannon".

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Enclosures:

1. 180-Day Response to Generic Letter 2003-01
2. List of Regulatory Commitments

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180-Day Response to Generic Letter 2003-01

Background

On June 12, 2003, the NRC issued Generic Letter 2003-01, "Control Room Habitability." Generic Letter 2003-01 requested licensees to submit information demonstrating that control rooms comply with the current licensing and design bases, and applicable regulatory requirements, and that suitable design, maintenance and testing control measures are in place for maintaining this compliance. The generic letter requests that this information be provided within 180 days or, if unable to meet this schedule, notification be made within 60 days. Progress Energy Carolinas, Inc. (PEC) provided notification of the plans for completion in a 60-day response to Generic Letter 2003-01 for the Brunswick Steam Electric Plant, (BSEP) Unit Nos. 1 and 2 on August 11, 2003 (i.e., ADAMS Accession Number ML032310430). The following is the 180-day response for BSEP.

Requested Information 1

Provide confirmation that your facility's control room meets the applicable habitability regulatory requirements (e.g., GDC 1, 3, 4, 5, and 19) and that the CRHSs are designed, constructed, configured, operated, and maintained in accordance with the facility's design and licensing bases. Emphasis should be placed on confirming:

- (a) That the most limiting unfiltered inleakage into your CRE (and the filtered inleakage if applicable) is no more than the value assumed in your design basis radiological analyses for control room habitability. Describe how and when you performed the analyses, tests, and measurements for this confirmation.
- (b) That the most limiting unfiltered inleakage into your CRE is incorporated into your hazardous chemical assessments. This inleakage may differ from the value assumed in your design basis radiological analyses. Also, confirm that the reactor control capability is maintained from either the control room or the alternate shutdown panel in the event of smoke.
- (c) That your technical specifications verify the integrity of the CRE, and the assumed inleakage rates of potentially contaminated air. If you currently have a ΔP surveillance requirement to demonstrate CRE integrity, provide the basis for your conclusion that it remains adequate to demonstrate CRE integrity in light of the ASTM E741 testing results. If you conclude that your ΔP surveillance requirement is no longer adequate, provide a schedule for: 1) revising the surveillance requirement in your technical specification to reference an acceptable surveillance methodology (e.g., ASTM E741), and 2) making any

necessary modifications to your CRE so that compliance with your new surveillance requirement can be demonstrated.

If your facility does not currently have a technical specification surveillance requirement for your CRE integrity, explain how and at what frequency you confirm your CRE integrity and why this is adequate to demonstrate CRE integrity.

Response 1

BSEP confirms that the control room meets the applicable habitability regulatory requirements, of General Design Criteria (GDC) 1, 3, 4, 5, and 19; and that the control room habitability systems are designed, constructed, configured, operated, and maintained in accordance with the facility's design and licensing bases. Significant review of the BSEP control room habitability systems and requirements has been performed over the past several years and the above conclusion is based, in large part, on the following:

- The Updated Final Safety Analysis Report (UFSAR), Chapter 15 bounding radiological analyses were reanalyzed in accordance with the Alternative Source Term (AST) guidelines in Regulatory Guide 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors." Input assumptions were evaluated against current plant design and operation. The revised analyses supported the license amendment request that adopted the AST, which was approved by the NRC (i.e., Brunswick Steam Electric Plant, Units 1 and 2 – Issuance of Amendment Re: Alternative Source Term, dated May 30, 2002 [ADAMS Accession Number ML021480483]).
- A detailed review of the control room habitability envelope and ventilation systems was performed in preparation for tracer gas inleakage testing that is scheduled to be performed in the second quarter of 2004. No significant deficiencies were identified and minor leakage areas were repaired at the time of discovery.
- A control room habitability self-assessment was performed in June 2003. The self-assessment scope addressed many of the topics covered in NEI 99-03, "Control Room Habitability Guidance," Revision 1, including: operating procedures, surveillance testing, post-maintenance testing, maintenance practices and procedures, radiological analyses, hazardous chemical evaluations, and design change control. Corrective actions to address self-assessment findings are underway and scheduled for completion by July 31, 2004.
- The NRC performed a Safety System Design and Performance Capability Inspection (i.e., NRC Inspection Manual Chapter 71111.21) on October 19, 2001 (i.e., Brunswick Steam Electric Plant - NRC Inspection Report 50-325/01-01, 50-324/01-01, dated December 5, 2001 [ADAMS Accession Number ML013400340]). Through review of the BSEP

Probabilistic Safety Assessment, the team selected a population of components and operator actions that could initiate a loss of offsite power with a station blackout or mitigate the consequences of an accident. Areas reviewed included control room habitability and control room heating, ventilation and air conditioning (HVAC). The inspection report stated: "A walkdown inspection of the control room area, control room emergency ventilation system, and standby gas treatment system to verify that the equipment relied upon to initiate control room emergency ventilation air flow through the charcoal filters, and to stop unfiltered air flow through the control room habitability boundaries, were installed as described in the system descriptions and habitability analyses. The walkdown included ventilation ducts, fans, filters, power supplies, control circuits, and habitability boundaries... No significant findings were identified."

The following provides additional details on the three sub-issues that are emphasized in Generic Letter 2003-01:

- (a) In the 60-day response to Generic Letter 2003-01, a commitment was made to perform air inleakage testing in accordance with ASTM E741 and submit the results of this testing by July 31, 2004. The confirmation called for in Requested Information 1(a) will be provided following completion of this testing and no later than July 31, 2004. The justification for this alternative schedule and the commitment to perform the air inleakage testing are provided in the referenced 60-day response letter.

Revised radiological analyses have been performed in accordance with Regulatory Guide 1.183. These revised analyses, which included higher assumed inleakage rates, were submitted to the NRC, in support of the AST amendment request. This change was approved by the NRC on May 30, 2002.

- (b) The BSEP hazardous chemical analysis, which was performed in response to NUREG-0737, assumed a relatively high inleakage rate of 2000 cfm. In the 60-day response to Generic Letter 2003-01, a commitment was made to perform air inleakage testing in accordance with ASTM E741 by July 31, 2004. This testing will verify the inleakage into the control room envelope is equal to or less than 2000 cfm. The confirmation concerning hazardous chemical assessments called for in Requested Information 1(b) will be provided following completion of this testing and no later than July 31, 2004. The justification for this alternative schedule, as well as the commitment to perform the air inleakage testing, is provided in the 60-day response letter.

In regard to the capability to maintain reactor control capability in the event of a smoke event, BSEP has performed a qualitative evaluation in accordance with Appendix A of NEI 99-03, Revision 1. This evaluation demonstrated the capability to maintain reactor control from either the control room or the alternate shutdown locations in the event of smoke originating inside or outside the control room envelope.

- (c) BSEP has a positive pressure control room design and Technical Specification Surveillance Requirement 3.7.3.3 demonstrates that the Control Room Emergency Ventilation System can maintain the control room envelope at a positive pressure relative to adjacent areas. BSEP will submit a proposed license amendment request within six months following approval of TSTF-448, or if the TSTF is processed through the Consolidated Line Item Improvement Process (CLIP), within 6 months after the CLIP is published in the *Federal Register*. The amendment request will include a new Technical Specification Surveillance Requirement to determine inleakage in accordance with a Control Room Integrity Program. A new section will be added to Technical Specification Section 5.5, "Programs and Manuals," that will specify the scope of the Control Room Integrity Program. The Control Room Integrity Program will rely on the use of tracer gas inleakage testing.

BSEP does not anticipate that modifications to the control room envelope will be required in order to demonstrate compliance with new surveillance requirements.

Requested Information 2

If you currently use compensatory measures to demonstrate control room habitability, describe the compensatory measures at your facility and the corrective actions needed to retire these compensatory measures.

Response 2

There are no compensatory measures in effect or necessary at BSEP in order to meet control room habitability requirements.

Requested Information 3

If you believe that your facility is not required to meet either the GDC, the draft GDC, or the "Principal Design Criteria" regarding control room habitability, in addition to responding to 1 and 2 above, provide documentation (e.g., Preliminary Safety Analysis Report, Final Safety Analysis Report sections, or correspondence) of the basis for this conclusion and identify your actual requirements.

Response 3

As stated in Section 3.1 of the Safety Evaluation for the Brunswick Steam Electric Plant Units 1 and 2, dated November 1973, the BSEP design was reviewed for construction under the "General Design Criteria for Nuclear Power Plant Construction" issued for comment by the AEC in

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July 1967, and is committed to meet the intent of the GDC, published in the *Federal Register* on May 21, 1971, as Appendix A to 10 CFR Part 50.

LIST OF REGULATORY COMMITMENTS

Those actions committed to by Progress Energy Carolinas, Inc. (PEC) in this document are identified below. Any other actions discussed in this 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 of any questions regarding this document or any associated regulatory commitments.

Committed Item	Date Due
1. BSEP will submit a proposed license amendment request within six months following approval of TSTF-448. The amendment request will include a new Technical Specification Surveillance Requirement to determine inleakage in accordance with a Control Room Integrity Program. A new section will be added to Technical Specification Section 5.5, "Programs and Manuals," that will specify the scope of the Control Room Integrity Program. The Control Room Integrity Program will rely on the use of tracer gas inleakage testing.	Within 6 months following: approval of TSTF-448, or publication in the <i>Federal Register</i> , of a Consolidated Line Item Improvement for TSTF-448.