



**Benjamin C. Waldrep**  
Vice President  
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July 27, 2009

SERIAL: BSEP 09-0079

10 CFR 50.54(f)

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

**Subject:** Brunswick Steam Electric Plant, Unit No. 2  
Docket No. 50-324/License No. DPR-62  
Post-Outage Supplemental Response to Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems"

- References:**
1. Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," dated January 11, 2008 (ADAMS Accession Number ML072910759)
  2. Letter from Benjamin C. Waldrep to the U.S. Nuclear Regulatory Commission (Serial: BSEP 08-0060), "Three-month Response to Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems" dated May 9, 2008 (ADAMS Accession Number ML081420026)
  3. Letter from Benjamin C. Waldrep to the U.S. Nuclear Regulatory Commission (Serial: BSEP 08-0137), "Nine-month Response to Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems" dated October 10, 2008 (ADAMS Accession Number ML082950466)

Ladies and Gentlemen:

On January 11, 2008, the NRC issued Generic Letter (GL) 2008-01 (i.e., Reference 1) requesting that each licensee evaluate the licensing basis, design, testing, and corrective action programs for the Emergency Core Cooling Systems (ECCS), Decay Heat Removal (RHR) system, and Containment Spray system, to ensure that gas accumulation is maintained less than the amount that challenges operability of these systems, and that appropriate action will be taken when conditions adverse to quality are identified.

References 2 and 3 provided Carolina Power & Light Company's (CP&L), now doing business as Progress Energy Carolinas, Inc., responses to GL 2008-01 for the Brunswick Steam Electric Plant (BSEP), Units 1 and 2. In Reference 2, CP&L committed to

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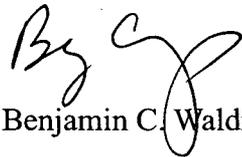
completing detailed walkdowns and any necessary ultrasonic examinations of inaccessible piping at locations potentially susceptible to gas accumulation for systems within the scope of GL 2008-01 and to submit a supplemental response to GL 2008-01, within 90 days following the completion of the 2009 Unit 2 refueling outage (i.e., B219R1), describing any changes to the nine-month response resulting from walkdowns and ultrasonic examination of inaccessible BSEP Unit 2 piping.

The enclosure to this letter provides CP&L's post-outage supplemental response to GL 2008-01 for BSEP Unit 2.

No new regulatory commitments are contained in this submittal. Please refer any questions regarding this submittal to Mr. Gene Atkinson, Supervisor - Licensing/Regulatory Programs, at (910) 457-2056.

I declare, under penalty of perjury, that the foregoing is true and correct. Executed on July 27, 2009.

Sincerely,

A handwritten signature in black ink, appearing to read "By C. Waldrep". The signature is stylized and cursive.

Benjamin C. Waldrep

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Enclosure:

Post-Outage Supplemental Response to Generic Letter 2008-01 for BSEP Unit 2

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cc (with enclosure):

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U. S. Nuclear Regulatory Commission  
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U. S. Nuclear Regulatory Commission **(Electronic Copy Only)**  
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## **Post-Outage Supplemental Response to Generic Letter 2008-01 for BSEP Unit 2**

The 2009 Brunswick Steam Electric Plant (BSEP), Unit 2 refueling outage (i.e., B219R1) was completed on April 29, 2009. During this outage, as committed, Carolina Power & Light Company's (CP&L), now doing business as Progress Energy Carolinas, Inc., completed detailed walkdowns and necessary ultrasonic examinations of inaccessible piping at locations potentially susceptible to gas accumulation for systems within the scope of Generic Letter (GL) 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," dated January 11, 2008. Based on completion of these activities, the following supplemental information to BSEP's nine-month response to GL 2008-01, dated October 10, 2008, is provided.

### **A. Evaluation Results**

#### **1. Design Basis Documents**

There have been no changes in the BSEP design basis documents related to gas accumulation since the nine-month response. Plant drawings have been updated to reflect the addition of the new vent valves discussed below.

The nine-month response stated that BSEP would, as an enhancement, develop a calculation that provides an analytical basis for void acceptance criteria for systems within the scope of GL 2008-01. This calculation has been completed and acceptable void volumes have been established for specific locations that were identified to be potentially susceptible to gas accumulation, based on the gas void acceptance criteria described in the nine-month response.

#### **2. Confirmatory Walkdowns**

As noted in BSEP's three-month response to GL 2008-01, dated May 9, 2008, walkdowns of BSEP Unit 2 piping systems, in a number of inaccessible areas of the plant, were scheduled to be completed during the Spring 2009 Unit 2 refueling outage (i.e., B219R1). These inspections of the normally inaccessible piping were completed, as scheduled, and the piping was confirmed to be routed as shown on plant isometric drawings. No Ultrasonic Test (UT) inspections or slope measurements were taken on discharge piping downstream of normally closed injection valves because the configuration downstream of the injection valves is an open flow path to the Reactor Coolant System. As such, there is no opportunity for pressure wave reflection from a downstream surface.

The GL 2008-01 subject systems were drained to support the installation of new vent valves and/or for other scheduled maintenance. Following these maintenance evolutions, post fill and vent UT inspections were performed on the systems at

potentially susceptible locations to confirm the effectiveness of the new vent valves and fill and vent procedure revisions. In each of the subject systems, UT inspections were performed on both suction and discharge piping. Only very minor voiding was identified and all voids were found to be significantly less than the acceptable void volumes determined in the acceptance criteria calculation. Suction side voids were removed by dynamic venting and were verified to be removed by UT inspections.

### **3. Vent Valves**

Beyond those planned for the outage, no additional vent valves or modifications to existing vent valves were required as a result of the walkdowns performed during B219R1.

### **4. Procedures**

No new procedure revisions were identified as a result of the walkdowns performed during B219R1.

## **B. Description of Necessary Additional Corrective Actions**

### **1. Additional Corrective Actions**

No new corrective actions were identified as a result of the walkdowns performed during B219R1.

### **2. Corrective Action Updates**

New vent valves were installed at the locations specified in the nine-month response, with the exception of the HPCI injection line downstream of check valve 2-E41-V159 and the Core Spray torus suction lines. Since the nine-month response was submitted, further analysis of the piping downstream of 2-E41-V159 determined that this location is not susceptible to adverse pressure transients since there is no opportunity for pressure wave reflection from a downstream surface in the flow stream. Installation of the Core Spray torus suction line vents was not required because: (1) these lines are not subjected to any active source of gas intrusion, and as such there is no potential for gas introduction while the system is in its normal standby condition and (2) dynamic venting has been proven to be effective at eliminating small residual voids (i.e., significantly smaller than the acceptable void volumes at the respective locations) that remain following initial filling and venting of these lines.

Except for the vent valve changes identified above, all previously identified BSEP Unit 2 corrective actions associated with this GL, with due dates prior to startup from B219R1, have been completed.

**C. Conclusion**

BSEP has completed the evaluation of the previously inaccessible portions of the applicable systems at BSEP Unit 2 that perform the functions described in the GL and has concluded that these systems are operable, as defined in the BSEP Technical Specifications, and are in conformance with the BSEP licensing basis and compliance with all applicable regulations, including 10 CFR 50 Appendix B, Criteria III, V, XI, XVI, and XVII.