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August 11, 2005

SERIAL: BSEP 05-0112

10 CFR 54

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  
Supplemental Responses to Requests for Additional Information -  
License Renewal (NRC TAC Nos. MC4639 and MC4640)

Reference: Letter from Cornelius J. Gannon to the U. S. Nuclear Regulatory  
Commission (Serial: BSEP 04-0006), "Application for Renewal of  
Operating Licenses," dated October 18, 2004 (ML043060406)

Ladies and Gentlemen:

On October 18, 2004, Carolina Power & Light Company, now doing business as Progress Energy Carolinas, Inc. (PEC), requested the renewal of the operating licenses for Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2, to extend the terms of their operating licenses an additional 20 years beyond the current expiration dates.

In recent discussions with the Nuclear Regulatory Commission, PEC has been asked to supplement its responses to previous NRC requests for additional information. The enclosure provides the requested information. Please refer any questions regarding this submittal to Mr. Mike Heath, Supervisor - License Renewal, at (910) 457-3487.

I declare, under penalty of perjury, that the foregoing is true and correct. Executed on August 11, 2005

Sincerely,

A handwritten signature in black ink, appearing to read 'C. J. Gannon'.

Cornelius J. Gannon

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Enclosure: Supplemental Information Supporting the BSEP License Renewal Application

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## Supplemental Information Supporting the BSEP License Renewal Application

### Background

On October 18, 2004, Carolina Power & Light Company, now doing business as Progress Energy Carolinas, Inc. (PEC), submitted a License Renewal Application (LRA) that requested the renewal of the operating licenses for Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2, to extend the terms of their operating licenses an additional 20 years beyond the current expiration dates.

In recent discussions with the NRC, PEC has been asked to supplement responses provided to previous requests for additional information (RAIs). This enclosure provides the requested supplemental information.

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The following table contains the acronyms and abbreviations used in this enclosure.

<b>TABLE OF ACRONYMS AND ABBREVIATIONS</b>	
<b>AMP</b>	<b>Aging Management Program</b>
<b>BSEP</b>	<b>Brunswick Steam Electric Plant</b>
<b>LRA</b>	<b>License Renewal Application</b>
<b>MIC</b>	<b>Microbiologically Induced Corrosion</b>
<b>NRC</b>	<b>Nuclear Regulatory Commission</b>
<b>PEC</b>	<b>Progress Energy Carolinas, Inc.</b>
<b>PM</b>	<b>Preventive Maintenance</b>
<b>RAI</b>	<b>Request for Additional Information</b>

### **NRC RAI 3.3-3 (Supplemental Response)**

PEC letter to the NRC (Serial: BSEP 05-0055), dated May 11, 2005, provided the original response to this RAI. Following further discussions with the NRC, BSEP is providing the following supplemental information.

RAI 3.3-3 addressed concerns regarding aging effects for certain carbon steel and copper alloy components in a lube oil environment in LRA Tables 3.3.2-6 and 3.3.2-8. BSEP identified no aging effects for these components. However, RAI 3.3-3 recognized the potential for carbon steel and copper alloy materials to experience loss of material in an oil environment if exposed to contaminants and/or moisture. The RAI requested that BSEP address the potential for leakage of

raw water or the absence of a chemistry control aging management program (AMP) for the lubricating oil, resulting in contamination of the lube oil environment such that aging effects could occur.

BSEP will revise its Preventive Maintenance (PM) AMP to address corrosion concerns related to the potential for water intrusion in lubricating oil in the Service Water Pump Motor Cooler Coils, shown on LRA Table 3.3.2-6, and the Emergency Diesel Engines Lube Oil System, shown on LRA Table 3.3.2-8. BSEP currently performs routine sampling and analyses of lubricating oil in these components. These activities are driven by recurring PM activities and are intended to detect a range of contaminants including moisture and particulates, including corrosion products. The PM activities specify appropriate corrective action if contamination is found. The PM AMP will incorporate these activities to ensure they are continued during the period of extended operation. Prior to the end of the current license period, BSEP will also utilize the One-Time Inspection Program for verification of program effectiveness by visually inspecting at least one of the four Emergency Diesel Engine Sumps, and at least one of the ten Service Water Pump Lubricating Oil Cooling Coils for corrosion products and evidence of moisture.

This activity does not affect the description of the PM Program in Appendix A of the LRA.

The table of PM Program activities listed in LRA Appendix B, Section B.2.30, is modified by this revision to include the following line items:

System	PM Program Activity
Service Water System	Perform recurring sampling / analyses of lubricating oil in the Service Water Pump Reservoir.
DG Lube Oil System	Perform recurring sampling / analyses of lubricating oil in the Emergency Diesel Generator Lubricating Oil System.

As with the PM Program, the description of the One-Time Inspection Program in Appendix A of the LRA is not affected by this activity. However, the table of One-Time Inspection Program activities in LRA Appendix B, Section B.2.15, is modified by this revision to include the following line item:

Structure/Component	Building Structure/System	Aging Effect of Concern
Service Water Pump Cooling Coils, Emergency Diesel Generator Lubricating Oil Sumps	Service Water and Emergency Diesel Generator Lubricating Oil Systems	Loss of Material due to corrosion

The addition of lubricating oil sampling and analysis activities under the PM Program and verification of program effectiveness under the One-Time Inspection Program are commitments associated with the BSEP license renewal application. However, the scope of these activities is contained in existing license renewal commitments A.1.1.15 and A.1.1.32, as described by the changes discussed above to Appendix B, Sections 2.15 and B.2.30, respectively. Therefore, no changes to the list of License Renewal Commitments are required.

**NRC RAI 3.3.2-5-1 (Supplemental Response)**

PEC letter to the NRC (Serial: BSEP 05-0055), dated May 11, 2005, provided the original response to this RAI. Following further discussions with the NRC, BSEP is providing the following supplemental information.

The BSEP LRA identified the potential for aging effects in the Radioactive Floor Drains System on LRA Table 3.3.2-14 and in the Non-Contaminated Water Drainage System on LRA Table 3.3.2-25. The aging management review specified the One-Time Inspection Program for aging management of these effects. BSEP has revised the aging management strategy for these components based on the potential for locally aggressive environments, particularly associated with floor drains periodically exposed to service water, and roof drains exposed to coastal atmospheric conditions. The revised strategy will utilize the PM Program to perform inspections of susceptible components on a recurring basis. This revision is intended to provide a greater level of scrutiny to ensure detection of aging effects prior to loss of intended function.

BSEP has also reviewed the aging management strategy for components in the Makeup Water Treatment System, on LRA Table 3.3.2-16, and in the Potable Water System, on LRA Table 3.3.2-17, to affirm the adequacy of the One-Time Inspection Program for aging management as specified by the LRA. This review determined that components in these systems are exposed to a relatively benign environment and that aging effects are expected to progress slowly and predictably. Based on this review, and supported by the lack of adverse plant operating experience, the One-Time Inspection Program is considered to be appropriate for aging management of these components.

These revisions to aging management activities do not affect the descriptions of the One-Time Inspection Program or the PM Program found in Appendix A of the LRA.

The table of PM program activities listed in LRA Appendix B, Section B.2.30, is modified by this revision to include the following line item:

<b>System</b>	<b>PM Program Activity</b>
Non-Contaminated Water Drainage and Radioactive Floor Drains Systems	Perform inspections of susceptible components for Cracking and Loss of Material due to general corrosion, crevice corrosion, pitting corrosion, and MIC.

Additionally, since the One-Time Inspection Program is no longer credited with aging management of these components, the table of One-Time Inspection Program activities in LRA Appendix B, Section B.2.15 is modified by this revision to omit the following line item:

<b>Structure/Component</b>	<b>Building Structure/System</b>	<b>Aging Effect of Concern</b>
Components exposed to Raw Water	Non-Contaminated Water Drainage and Radioactive Floor Drains Systems	Cracking and Loss of Material due to general corrosion, crevice corrosion, pitting corrosion, and MIC

#### **NRC RAI 3.5-5 (Supplemental Response)**

PEC letter to the NRC (Serial: BSEP 05-0050), dated May 4, 2005, provided the original response to this RAI. The response noted that hot penetration temperatures, recorded on chart paper, were reviewed back to 1997. No penetration temperatures exceeded 200°F, with the highest recorded temperature of 185°F, occurring between June and August of 2003 on one of the main steam lines. It was noted that this demonstrated that the insulation has been proven effective in maintaining hot penetration temperatures below 200°F. Following further discussions with the NRC, BSEP is providing the following supplemental information:

The penetration insulation material is fabricated from Hydrous Calcium Silicate. Although not a requirement of the Structures Monitoring Program, hot penetration temperatures are periodically monitored by the Primary Containment System Engineer and trended in the system notebook.