

March 17, 2005

Mr. Cornelius J. Gannon  
Vice President  
Carolina Power & Light Company  
P.O. Box 10429  
Southport, NC 28461-0429

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION (RAI) FOR THE REVIEW OF  
THE BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2, LICENSE  
RENEWAL APPLICATION

Dear Mr. Gannon:

By letter dated October 18, 2004, Carolina Power & Light Company (CP&L or the applicant), submitted an application pursuant to the Title 10 *Code of Federal Regulations* Part 54 (10 CFR Part 54), to renew the operating licenses for Brunswick Steam Electric Plant (BSEP), Units 1 and 2, for review by the U.S. Nuclear Regulatory Commission (NRC). The NRC staff is reviewing the information contained in the license renewal application (LRA) and has identified, in the enclosure, areas where additional information is needed to complete the review.

These RAIs were discussed with your staff, Mike Heath, and a mutually agreeable date for this response is within 30 days from the date of this letter. If you have any questions, please contact me at 301-415-2783 or e-mail [SKM1@nrc.gov](mailto:SKM1@nrc.gov).

Sincerely,

*/RA/*

Sikhindra K. Mitra, Project Manager  
License Renewal Section A  
License Renewal and Environmental Impacts Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket Nos. 50-325 and 50-324

Enclosure: As stated

cc w/encls: See next page

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SUBJECT: REQUEST FOR ADDITIONAL INFORMATION (RAI) FOR THE REVIEW OF THE  
BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2, LICENSE RENEWAL  
APPLICATION

Dear Mr. Gannon:

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License Renewal Section A  
License Renewal and Environmental Impacts Program  
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Brunswick Steam Electric Plants, Units 1 and 2

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Brunswick Steam Electric Plants, Units 1 and 2 - 2 -

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DISTRIBUTION: Letter to C. Gannon, Re: RAI for review of the Brunswick Steam Electric Plant,  
Dated: March 17, 2005

**Adams Accession No.: ML050760084**

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BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2  
LICENSE RENEWAL APPLICATION (LRA)  
REQUEST FOR ADDITIONAL INFORMATION (RAI)

**RAI B.2.29-1**

The applicant stated that the Systems Monitoring Program is an existing, plant-specific program and there is no comparable NUREG-1801 program in place. The applicant further stated that the implementation of the Systems Monitoring Program will be accomplished by a new procedure to be developed before the period of extended operation. The applicant is requested to provide the following information:

- (A) Since the Systems Monitoring Program is an existing program, what is the frequency of inspection, and what are the inspection criteria for the current program?
- (B) Among the 10 elements for the program, many element descriptions are relying on a new procedure to be developed prior to the period of extended operation. For example, the applicant stated, in the "Monitoring and Trending," that the new procedure to be developed will include guidance on inspection frequency, inspection criteria that focus on detection of aging effects, and trending to provide predictability of component degradation. The applicant is requested to clarify the differences between those elements to be developed in the new procedure and those in the existing program.

**RAI B.2.29-2**

In the program element, "Parameters Monitored/Inspected," the applicant stated that engineering and other plant personnel will continue to inspect the surface conditions of mechanical system components including closure bolting through visual inspection and examination for evidence of defects and age-related degradation. The applicant further stated that identified aging effects include loss of material and cracking. The applicant is requested to provide justification for not identifying loss of preload as an aging effect for closure bolting in various plant systems.

**RAI B.2.29-3**

The applicant is requested to provide some examples of actual plant-specific operating experience when appropriate actions were taken to demonstrate and ensure the effectiveness of the existing Systems Monitoring Program.

**RAI B.2.32-1**

This inspection program includes monitoring parameters (as described in element "***Parameters Monitored***") as well as monitoring prestressing force levels in the girders. The applicant is requested to provide its justification as to why the element "***Acceptance Criteria***" does not incorporate the acceptance criteria related to the tendon hardware components and corrosion protection medium (CPM) similar to those in Subsection IWL of Section XI of the ASME Code.

Enclosure

### **RAI B.2.32-2**

This RAI is related to the element “*Operating Experience*.” In order for the staff to make a reasonable assurance conclusion regarding the present and future condition of the prestressing system in the fuel pool girders, the applicant is requested to provide a summary of the results of the last two inspections for Unit 1, and Unit 2 girders. As a minimum, the summary should include: (1) the minimum required prestressing forces, (2) the sample size of the tendons inspected, (3) a table of measured prestressing forces, (4) chemical composition of grease (CPM), and free water in the grease, (5) strength values of the wires tested during inspections, and (6) condition of anchorages, and the concrete around the anchorages.

### **RAI B.2.32-3**

In Section A.1.1.34 of the LRA, the applicant provides a summary of the inspection program. The summary, in part, states: “Inspection results are used to ensure that the tendon prestressing values do not fall below the minimum design requirements.” To be meaningful, the summary should include the minimum prestressing force values required for the girders to perform their intended function.

### **RAI 4.7.4-1**

The torus liner and the ASME, Section XI, ISI component supports are dispositioned through 10 CFR 54.21(c)(1)(ii). In its description of the analyses, the applicant states:

The corrosion rate in the immersion zone was determined to be 0.00116 inch/year based on plant calculations and measurements. The general corrosion rate for the vapor zone is conservatively assumed to be the same as the immersion zone.

... [For ASME, Section XI, ISI Component Supports], (t)he evaluation considered the number of sides of the component exposed to the torus environment and the time at which the component had been installed.

The staff requests the applicant to describe the most recent significant inspection findings for the selected ASME, Section XI, ISI components, and the code inspection requirements for these components.

The staff requests the applicant to provide details of the plant calculations and measurements to support the use of the 0.00116 inch/year corrosion rate.

The additional information should include a description of the corrosion monitoring program (discussed during the January 12, 2005, teleconference call) from which the 0.00116 inches/year corrosion rate was determined. In addition, the applicant should indicate the number and frequency of coupons removed and tested.

The staff also requests the applicant to discuss the frequency and results of the wall thickness measurements in the vapor zone to support the assertion that the corrosion rate for the immersion zone is a conservative assumption for the corrosion rate in the vapor zone.

**RAI 4.7.4-2**

The non-ASME, Section XI, ISI component supports are dispositioned through 10 CFR 54.21(c)(1)(iii). In its description of the analyses, the applicant states:

The aging management activities will be predicated on the results of volumetric measurements performed on the components. Therefore, prior to the period of extended operation, the One-Time Inspection Program will be used to perform volumetric measurements to determine the actual rate of corrosion of the Vent Header Lower Column Support in the immersed and vapor space of the Torus, and platform steel and miscellaneous supports in the vapor space of the Torus.

The staff requests the applicant to describe the baseline inspection performed and the results of the inspection for each of the non-ASME, Section XI, ISI components, from which the actual rate of corrosion will be determined.

The staff requests the applicant to discuss how the one-time inspection (OTI) Program is defined such that all the non-ASME, Section XI, ISI component supports are included within the scope of the OTI program, ultrasonically inspected, and the inspection results analyzed and evaluated for the period of extended operation.

The staff requests the applicant clarify that the description and scope for the non-ASME, Section XI, ISI component supports applies to Unit 1 or Unit 2 or both and to list the components and the environments in which these components are found (i.e., vapor zone or immersed zone or both).