

June 3, 2005

MEMORANDUM TO: P.T. Kuo, Program Director
License Renewal and Environmental Impacts Program
Division of Regulatory Improvements Programs
Office of Nuclear Reactor Regulation

FROM: Dale Thatcher, Chief */RA/*
Quality and Maintenance Section
Plant Support Branch
Division of Inspection Program Management
Office of Nuclear Reactor Regulation

SUBJECT: AUDIT REPORT REGARDING LICENSE RENEWAL APPLICATION
FOR THE BRUNSWICK STEAM ELECTRIC PLANT DATED
OCTOBER 18, 2004

Plant Name: Brunswick Steam Electric Plant
Utility Name: Carolina Power & Light, doing business as Progress Energy Carolinas, Inc.
Docket No.(s): 50-324, 50-325
TAC No.(s): MC 4639, MC4640
Review Branch: IPSB
Review Status: Pending resolution of Requests for Additional Information (RAIs)

From March 1 - 4, 2005, the Plant Support Branch (IPSB) performed an audit of the Carolina Power & Light, doing business as Progress Energy Carolinas, Inc., (the applicant) license renewal scoping and screening methodology developed to support the Brunswick Steam Electric Plant, license renewal application (LRA), dated October 18, 2004. The focus of the staff's audit was evaluation of the applicant's administrative controls governing implementation of the LRA scoping and screening methodology and review of the technical basis for selected scoping and screening results for various plant systems, structures, and components (SSCs). The audit team also reviewed quality attributes for aging management programs and the training of license renewal project personnel. A trip report containing a summary of the audit results is attached.

Attachment: As stated

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TRIP REPORT REGARDING THE CAROLINA POWER & LIGHT APPLICATION FOR
LICENSE RENEWAL FOR THE BRUNSWICK STEAM ELECTRIC PLANT
DATED OCTOBER 18, 2004

I. Introduction

From March 1 - March 4, 2005, Bill Rogers, Robert Pettis, Kerri Kavanagh and Frank Talbot of the Plant Support Branch, and Kim VanDoorn of Region II audited the Carolina Power & Light, doing business as Progress Energy Carolinas, Inc. (the applicant) license renewal scoping and screening methodology developed to support the Brunswick Steam Electric Plant license renewal application (LRA). The audit was performed at the applicant's facility in Southport, North Carolina. The focus of the staff's audit was evaluation of the applicant's administrative controls governing implementation of the LRA scoping and screening methodology and review of the technical basis for selected scoping and screening results for various plant systems, structures, and components. The audit team also reviewed quality attributes for aging management programs and the training of license renewal project personnel.

II. Background

Title 10 of the *Code of Federal Regulations*, Part 54 (10 CFR Part 54), "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," Section 54.21, "Contents of Application — Technical Information," requires that each application for license renewal contain an integrated plant assessment (IPA). Furthermore, the IPA must list and identify those structures and components (SCs) that are subject to an aging management review (AMR) from the systems, structures, and components (SSCs) that are within the scope of license renewal. 10 CFR 54.4(a) identifies the plant systems, structures, and components (SSCs) within the scope of license renewal. Structures and components (SCs) within the scope of license renewal are screened to determine if they are long-lived, passive equipment that is subject to an aging management review in accordance with 10 CFR 54.21(a)(1).

III. Scoping Methodology

The scoping evaluations for the Brunswick LRA were performed by the applicant's license renewal project personnel. The audit team conducted detailed discussions with the applicant's license renewal project management personnel and reviewed documentation pertinent to the scoping process. The audit team assessed if the scoping methodology outlined in the LRA and implementation procedures was appropriately implemented and if the scoping results were consistent with current licensing basis requirements. The audit team also reviewed a sample of system scoping results for the Main Feed system.

In general, the team determined that the applicant's overall approach to license renewal SSC scoping appeared to be adequate. However, the audit team identified several issues where additional information will be required to complete the LRA review. These issues are documented in a draft request for additional information and are briefly described below.

- During the Brunswick scoping and screening methodology audit, the staff determined that the applicant had performed component based scoping and had included SCs within the scope of license renewal based upon the SC's classification within the Equipment Data Base relative to the criteria of 10 CFR 54.4 (a)(1), (2), or (3). The applicant had then included all systems within the scope of license renewal which contained any SCs which had been determined to be in-scope based on the SC's classification within the Equipment Data Base. The applicant indicated that the in-scope system current licensing basis (CLB) documentation, including the system intended functions, had been reviewed to verify that all in-scope SC's had been identified.

The staff reviewed the information contained in the LRA, discussed the process with the applicant and reviewed the applicable process implementation guidance. The staff determined that the process by which the current licensing basis information, including system intended functions, had been reviewed and considered during the scoping process was not clearly documented in the LRA. As a result, the staff requests that the applicant document how the current licensing basis information, including system intended functions, was considered during the scoping process.

- Based on a review of the LRA, the applicant's scoping and screening implementation procedures, calculations, and discussions with the applicant, the staff determined that additional information is required with respect to certain aspects of the applicant's evaluation of the 10 CFR 54.4(a)(2) criteria.

Section 2.1.1.2, "Non-Safety Related Criteria Pursuant to 10CFR54.4(a)(2)," of the LRA, and several of the applicant's calculations prepared to address the (a)(2) issue, state that nonsafety-related piping that is attached to safety-related piping, and that is seismically designed and supported up to the *first seismic anchor* (emphasis added) past the safety-related/nonsafety-related interface, should be included within the scope of license renewal. The LRA also states that the analysis of seismic induced effects was continued *well into* (emphasis added) the non-safety related piping in order to include the effects that non-safety related piping has on the adjoining safety related piping.

Based on the above, the staff requests that the applicant confirm that the first seismic anchor occurs at the point where non-safety related piping is restrained in three directions, or if not practical, supported in three directions by three individual supports; confirm that this approach is consistent with the CLB position for seismic-induced effects between connected non-safety related and safety-related piping documented in Amendment 15 of the BSEP FSAR; and describe the methodology of its application.

The staff will complete the evaluation of the applicant's scoping methodology pending resolution of these issues.

IV. Screening Methodology

The audit team reviewed the methodology used by the applicant to determine if mechanical, structural, and electrical components within the scope of license renewal would be subject to further aging management review. The applicant provided the staff with a detailed discussion

of the processes used for each discipline and provided administrative documentation that described the screening methodology. The audit team also reviewed the screening results reports for the Main Feed system. The team noted that the applicants screening process was performed in accordance with their written requirements and was consistent with the guidance provided in the staff's License Renewal Standard Review Plan and the NEI 95-10, Revision 3 document. The audit team determined that the screening methodology was consistent with the requirements of the Rule, and that the screening methodology will identify SCs that meet the screening criteria of 10 CFR 54.21(a)(1).

V. Aging Management Program Quality Assurance Attributes

Section 3.0, "Aging Management Review Results," of the LRA provides an aging management review (AMR) summary for each unique structure, component, or commodity group determined to require aging management during the period of extended operation. This summary includes identification of aging effects requiring management and aging management programs (AMPs) utilized to manage these aging effects.

Appendix A, "Updated Final Safety Analysis Report Supplement," and Appendix B, "Aging Management Programs," of the LRA, demonstrate how the identified programs manage aging effects using attributes consistent with the industry and NRC guidance. The applicant's programs and activities that are credited with managing the effects of aging can be divided into three types of programs: existing, enhanced, and new AMPs.

The audit team determined that both Appendix A, Section A1.1, "Aging Management Programs and Activities," and Appendix B Section B.1.3, "Quality Assurance Program and Administrative Controls," stated that the QA program implements the requirements of 10 CFR Part 50, Appendix B, for the elements of corrective action, confirmation process, and administrative controls and is applied to both safety-related and nonsafety-related SSCs in the period of extended operation. The audit team concluded that the quality attributes for aging management programs is consistent with the review acceptance criteria contained in NUREG-1800, Section A.2, "Quality Assurance for Aging Management Programs (Branch Technical Position IQMB-1)."

VI. Quality Assurance Controls Applied to LRA Development

The staff reviewed the quality assurance controls used by the applicant to provide reasonable confidence that the LRA scoping and screening methodologies were adequately implemented. The applicant utilized the following quality assurance processes during the LRA development:

- Implementation of the scoping and screening methodology was governed by written License Renewal procedures.
- Documentation, such as scoping calculations, was developed using the BSEP 10 CFR Part 50, Appendix B, requirements. All documents were design verified per EGR-NGGC-0003, "Design Verification Review Procedure."

- The PassPort EDB is maintained in an 10 CFR 50, Appendix B, document control environment.

As part of its review, the staff reviewed EGR-NGGC-0003 and NGGM-PM-0007, "Quality Assurance Program Manual." The staff concluded that these quality assurance activities, and the associated program and procedures, provided assurance that LRA development activities were performed consistently with the LRA descriptions.

VII. Training for License Renewal Project Personnel

The staff reviewed the applicant's EGR-NGGC-0501, "Nuclear Plant License Renewal Program," which describes the Manager of License Renewal or designee and discipline engineers responsibilities. Specifically, the Manager of License Renewal or designee must assure that individuals performing activities described in the procedure are qualified to perform the work. In addition, the discipline engineers are required to ensure that they are qualified for the task that they are performing. During discussions with the applicant, it was noted that no training was provided for BSEP License Renewal project because all members of the license renewal team are qualified to performed their specific activities and all members have previous license renewal experience from another applicant owned facility.

On the basis of discussions with the applicant's license renewal project team responsible for the scoping and screening process, and a review of selected design documentation in support of the process, the staff concluded that the applicant's staff understood the requirements of and adequately implemented the scoping and screening methodology established in the applicant's renewal application. The staff did not identify any concerns regarding the training of the applicant's license renewal project team.

VIII. Exit Meeting

A public exit meeting was held with the applicant on March 4, 2005, to discuss the results of the scoping and screening methodology audit. The audit team identified preliminary areas where additional information would be required to support completion of the staff's LRA review. Draft requests for additional information related to the applicant's scoping and screening methodology were forwarded to the NRR License Renewal and Environmental Impacts Program Director on March 22, 2005.

IX. Documents Reviewed

EGR-NGGC-0003, "Design Verification Review Procedure"
EGR-NGGC-0501, "Nuclear Plant License Renewal Program"
EGR-NGGC-0502, "System/Structure Scoping for License Renewal"
EGR-NGCC-0503, "Mechanical Component Screening for License Renewal"
EGR-NGCC-0505, "Electrical Component Screening and Aging Management Review for License Renewal"
EGR-NGGC-0506, "Civil/Structural Screening and Aging Management for License Renewal"

NGGM-PM-0007, "Quality Assurance Program Manual"
 BNP-LR-002, "Bulk Screening of EDB Equipment Types for License Renewal"
 BNP -LR-003, "Use of Equipment Database for License Renewal Scoping Calculations"
 BNP-LR-007, "License Renewal Scoping Calculation for Criteria 10 CFR 54.4(a)(2)"
 BNP-LR-009, "Civil Nonsafety-Related (II/I) Determination for License Renewal"
 BNP-LR-012, "License Renewal Scoping for Seismic Continuity Piping"
 BNP-LR-013, "License Renewal Scoping Calculation for Nonsafety-Related Spatial Interaction Piping"
 BNP-LR-0110, "License Renewal Civil Screening for Outside Areas"
 BNP-LR-0111, "License Renewal Civil Screening for Primary Containment System"
 OENP-33.5, "Quality Classification Analysis of Structures, Systems, and Components"
 BNP-LR-300, "Electrical Integrated Plant Assessment (IPA), Attachment 11, Screening for Electrical and I&C Components"
 BNP-LR-664, "License Renewal Aging Management Program Description of the Electrical Cables and Connections not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program"
 BNP-LR-665, "License Renewal Aging Management Program Description of the Electrical Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Used in Instrumentation Circuits Program"
 BNP-LR-666, "License Renewal Aging Management Description of the Inaccessible Medium Voltage Cables Not Subject to 10 CFR 50.49 Environmental Qualification Program"
 BNP-LR-668, "License Renewal Aging Management Program for the Phase Bus Program"

X. Personnel Contacted During Methodology Audit

Talmage Clements	Progress Energy/License Renewal Manager
Michael Heath	Progress Energy/License Renewal Supervisor
K.M Core	Progress Energy
Wayne Bichlmeir	Progress Energy
Anthony Ploplis	Progress Energy
Christopher Mallner	Progress Energy
Ed Williams	Progress Energy
Michael Guthrie	Progress Energy
Ken Karcher	Progress Energy
Michael Fletcher	Progress Energy
Thomas Overton	Progress Energy
Jeff Lane	Progress Energy
Tim Cleary	Progress Energy