

May 8, 2006

Mr. Cornelius J. Gannon, Vice President  
Shearon Harris Nuclear Power Plant  
Carolina Power & Light Company  
Post Office Box 165, Mail Code: Zone 1  
New Hill, North Carolina 27562-0165

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1 — REVIEW OF THE  
2004 STEAM GENERATOR TUBE INSPECTION SUMMARY REPORTS  
(TAC NO. MC8060)

Dear Mr. Gannon:

By letters dated May 27, 2004 (Agencywide Documents Access and Management System Accession Number, ML041560343), October 28, 2004 (ML043090488), February 15, 2005 (ML050600144), August 1, 2005 (ML052210457), and February 13, 2006 (ML060530375), Carolina Power and Light Company (the licensee) submitted information summarizing the results of its 2004 mid-cycle steam generator tube inspections at the Shearon Harris Nuclear Power Plant, Unit 1. In addition to these reports, the Nuclear Regulatory Commission (NRC) staff summarized additional information concerning the 2004 steam generator tube inspections in letters dated July 26, 2004 (ML042080426) and January 12, 2005 (ML043440363).

As discussed in the enclosed evaluation, the NRC staff concludes that the licensee provided the information required by its technical specifications. In addition, the staff did not identify any technical issues that warrant followup action at this time.

Sincerely,

*/RA/*

Chandu P. Patel, Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-400

Enclosure: Staff Evaluation

cc w/encl: See next page

May 8, 2006

Mr. Cornelius J. Gannon, Vice President  
Shearon Harris Nuclear Power Plant  
Carolina Power & Light Company  
Post Office Box 165, Mail Code: Zone 1  
New Hill, North Carolina 27562-0165

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1 — REVIEW OF THE  
2004 STEAM GENERATOR TUBE INSPECTION SUMMARY REPORTS  
(TAC NO. MC8060)

Dear Mr. Gannon:

By letters dated May 27, 2004 (Agencywide Documents Access and Management System Accession Number, ML041560343), October 28, 2004 (ML043090488), February 15, 2005 (ML050600144), August 1, 2005 (ML052210457), and February 13, 2006 (ML060530375), Carolina Power and Light Company (the licensee) submitted information summarizing the results of its 2004 mid-cycle steam generator tube inspections at the Shearon Harris Nuclear Power Plant, Unit 1. In addition to these reports, the Nuclear Regulatory Commission (NRC) staff summarized additional information concerning the 2004 steam generator tube inspections in letters dated July 26, 2004 (ML042080426) and January 12, 2005 (ML043440363).

As discussed in the enclosed evaluation, the NRC staff concludes that the licensee provided the information required by its technical specifications. In addition, the staff did not identify any technical issues that warrant followup action at this time.

Sincerely,

*/RA/*

Chandu P. Patel, Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-400

Enclosure: Staff Evaluation

cc w/encl: See next page

DISTRIBUTION:

Public RidsNrrDorLpl2-2 RidsNrrDorIDpr  
LPL2-2 Reading RidsNrrPMCPatel RidsAcrsAcwnMailCenter  
RidsOgcRp RidsNrrLACSola RidsRgn2MailCenter (P. Frederickson)  
K. Karwoski, NRR

ADAMS Accession No. ML060970591

NRR-106

OFFICE	LPL2-2/GE	LPL2-2/PM	LPL2-2/LA	NRR/DCI	LPL2-2/BC
NAME	SCrane	CPatel	RSola	KKarwoski	MMarshall
DATE	5/5/06	5/5/06	5/3/06	5/5/06	5/8/06

OFFICIAL RECORD COPY

Mr. C. J. Gannon, Jr.  
Carolina Power & Light Company

cc:

David T. Conley  
Associate General Counsel II -  
Legal Department  
Progress Energy Service Company, LLC  
Post Office Box 1551  
Raleigh, North Carolina 27602-1551

Resident Inspector/ Harris NPS  
c/o U. S. Nuclear Regulatory Commission  
5421 Shearon Harris Road  
New Hill, North Carolina 27562-9998

Ms. Margaret A. Force  
Assistant Attorney General  
State of North Carolina  
Post Office Box 629  
Raleigh, North Carolina 27602

Public Service Commission  
State of South Carolina  
Post Office Drawer 11649  
Columbia, South Carolina 29211

Ms. Beverly Hall, Section Chief  
Division of Radiation Protection  
N.C. Department of Environment  
and Natural Resources  
3825 Barrett Drive  
Raleigh, North Carolina 27609-7721

Mr. Chris L. Burton  
Manager  
Performance Evaluation and  
Regulatory Affairs PEB 7  
Progress Energy  
Post Office Box 1551  
Raleigh, North Carolina 27602-1551

Mr. Eric McCartney  
Plant General Manager  
Shearon Harris Nuclear Power Plant  
Carolina Power & Light Company  
P. O. Box 165, Mail Zone 3  
New Hill, North Carolina 27562-0165

Mr. Robert J. Duncan II  
Director of Site Operations  
Shearon Harris Nuclear Power Plant  
Carolina Power & Light Company  
Post Office Box 165, Mail Zone 1  
New Hill, North Carolina 27562-0165

Mr. Robert P. Gruber  
Executive Director  
Public Staff NCUC  
4326 Mail Service Center  
Raleigh, North Carolina 27699-4326

Chairman of the North Carolina  
Utilities Commission  
Post Office Box 29510  
Raleigh, North Carolina 27626-0510

Mr. Herb Council, Chair  
Board of County Commissioners  
of Wake County  
P. O. Box 550  
Raleigh, North Carolina 27602

Mr. Tommy Emerson, Chair  
Board of County Commissioners  
of Chatham County  
P. O. Box 87  
Pittsboro, North Carolina 27312

Mr. Christos Kamilaris, Manager  
Support Services  
Shearon Harris Nuclear Power Plant  
Carolina Power & Light Company  
P. O. Box 165, Mail Zone 1  
New Hill, North Carolina 27562-0165

Mr. David H. Corlett, Supervisor  
Licensing/Regulatory Programs  
Shearon Harris Nuclear Power Plant  
Carolina Power & Light Company  
P. O. Box 165, Mail Zone 1  
New Hill, NC 27562-0165

Mr. John H. O'Neill, Jr.  
Shaw, Pittman, Potts & Trowbridge  
2300 N Street, NW.  
Washington, DC 20037-1128

EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
OF THE STEAM GENERATOR TUBE INSPECTION REPORTS  
FOR THE 2004 OUTAGE  
SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1  
DOCKET NO. 50-400

By letters dated May 27, 2004 (Agencywide Documents Access and Management System Accession Number, ML041560343), October 28, 2004 (ML043090488), February 15, 2005 (ML050600144), August 1, 2005 (ML052210457), and February 13, 2006 (ML060530375), Carolina Power and Light Company (the licensee) submitted information summarizing the results of its 2004 mid-cycle steam generator (SG) tube inspections at Shearon Harris Nuclear Power Plant, Unit 1 (Harris). In addition to these reports, the Nuclear Regulatory Commission (NRC) staff summarized additional information concerning the 2004 SG tube inspections in letters dated July 26, 2004 (ML042080426), and January 12, 2005 (ML043440363).

Harris has three Westinghouse model Delta 75 SGs, that were put into service in 2001 during refueling outage (RFO) 10. Each SG has 6307 thermally treated Alloy 690 tubes that have an outside diameter of 0.688 inch and a nominal wall thickness of 0.040 inch. The tubes were hydraulically expanded at each end for the full depth of the tubesheet. The tubes are supported by a number of stainless steel support plates that have trifoil shaped holes through which the tubes pass. Below the support plates, is a flow distribution baffle that has octafoil-shaped holes. The tubes in rows 1 through 17 (i.e., those with a bend radius less than 12 inches) received a supplemental thermal treatment (stress relieving) after bending.

The licensee provided the scope, extent, methods, and results of its SG tube inspections in the documents referenced above. The licensee also described corrective actions (e.g., tube plugging) taken in response to the inspection findings.

As a result of the review of the reports, the NRC staff has the following comments/observations:

Following a tube leak in 2004, the licensee reviewed selected eddy current data from its 2003 (RFO 11) outage. Based on this review of the 2003 data, an indication was found in the tube in row 1, column 120 of SG C. The indication was estimated by the licensee to be 37 percent through-wall. As a result, the licensee classified the SG inspection results as Category C-1 in accordance with its technical specifications. A review of the eddy current data for this indication by the NRC resulted in a depth estimate of 40 percent through-wall. A 40 percent through-wall depth estimate would have resulted in categorizing the SG as Category C-2.

Enclosure

In addition, the licensee classified the results of its 2004 SG tube inspections as Category C-1. This classification was made based on the results of inspections performed after plugging three tubes that were damaged by a foreign object. The estimated depths of the degradation in these three tubes were in excess of 40 percent through-wall. No classification of the inspection results was performed for the three tubes plugged during the 2004 outage. Whenever SG tube inspections are performed, the technical specifications should be used in inspecting, repairing, and classifying the results. If the three tubes mentioned above were considered in the classification, the SG inspection results would have been classified as Category C-2.

Given the staff's categorization of the inspection results, the licensee would be required by its current technical specifications to perform its next SG tube inspections within 12 to 24 calendar months from the previous inspection (May 2004). If a categorization of C-1 for the 2003 and 2004 inspections were appropriate, the licensee would be permitted to extend its inspection interval to 40 months. Since the licensee plans to perform its next SG tube inspections within 12 to 24 calendar months since its previous inspection (May 2004), the categorization of the results is less important. The next inspections are planned for RFO 13 in the spring of 2006. In addition, such categorization is no longer necessary under the new standard Technical Specifications (i.e., Technical Specification Task Force 449, Revision 4), which the licensee plans to submit for NRC approval by May 31, 2006.

During a secondary side pressure test performed in 2004, the licensee was unable to exceed a test pressure of 60 pounds per square inch gauge since the capacity of the nitrogen supply system was exceeded. Presumably, the capacity of the nitrogen supply system was exceeded as a result of a secondary side leak other than the leakage through the leaking SG tube. Based on the low levels of normal operating primary-to-secondary leakage prior to the plant shutdown, there would not appear to be any tube integrity implications associated with this possible secondary side leak. The source of the leak was never identified.

Based on a review of the information provided, the staff concludes that the licensee provided the information required by its technical specifications. In addition, the staff concludes that there are no technical issues that warrant followup action at this time since the inspections appear to be consistent with the objective of detecting potential tube degradation and the inspection results appear to be consistent with industry operating experience at similarly designed and operated units.

Principal Contributor: Kenneth J. Karwoski

Date: May 8, 2006