January 12, 2005

Mr. James Scarola, 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: SUMMARY OF CONFERENCE CALL WITH PROGRESS ENERGY REGARDING THE SPRING 2004 STEAM GENERATOR TUBE INSPECTIONS AT SHEARON HARRIS (TAC NO. MC3133)

Dear Mr. Scarola:

On May 13, 2004, the Nuclear Regulatory Commission staff participated in a conference call with Carolina Power & Light Company representatives to discuss the results of ongoing inspections of the Shearon Harris Nuclear Power Plant Unit 1 steam generator tubes during a spring 2004 outage. A summary of the conference call is enclosed for your information.

Please contact me if you have any questions.

Sincerely,

/RA/

Chandu P. Patel, Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-400

Enclosure: As stated

cc w/encl: See next page

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SUMMARY OF CONFERENCE CALL
WITH CAROLINA POWER & LIGHT COMPANY
REGARDING THE SPRING 2004 STEAM GENERATOR INSPECTION RESULTS
AT SHEARON HARRIS

On May 13, 2004, the NRC staff participated in a phone call with Carolina Power & Light Company (CP&L) representatives to discuss the results of an ongoing steam generator (SG) tube inspection at Shearon Harris Nuclear Power Plant Unit 1 (HNP). HNP has three Westinghouse Model Delta 75 steam generators with thermally treated Alloy 690 tubing. A summary of the phone call is provided below. Although no steam generator tube inspection was planned this spring, CP&L personnel decided to investigate the source of low-level primary-to-secondary system leakage in SG C after a unit trip on May 6, 2004. Based on tritium analysis, the primary-to-secondary leak was determined to have initiated on April 21, 2004, and varied in the range of approximately 5 to 10 gallons per day in the week preceding plant shutdown.

The plant performed a secondary side pressure test to help locate the leaking tube in SG C. Drips from the leaking tube (R3, C120) were evident once the pressure reached 12 to 20 pounds per square inch gage (psig). Although the staff intended to test up to 750 psig, they were unable to reach pressures greater than approximately 60 psi because the capacity of the nitrogen supply system was exceeded. The licensee was investigating the source of the nitrogen leak during the pressure test. Following the pressure test, a foreign object search and retrieval (FOSAR) examination was performed. A metallic piece was visually identified in SG C above the cold leg tubesheet and adjacent to a flow blocking plate. This piece contacted several tubes and was removed during the FOSAR. The object was approximately 2 1/4-inches long, magnetic, and had an irregular shape with sharp edges. No other loose parts were found in SG C.

Bobbin coil and rotating probe eddy current testing was performed on 15 tubes in the area near the loose part. In addition, the licensee inspected the full length of approximately 20 percent of the tubes with a bobbin coil probe. The 20-percent sample included all peripheral tubes and selected columns of interior tubes. This testing identified three indications in SG C above the cold leg tubesheet (CLT) at the loose part location. All of the indications were associated with the loose part. Additional details are summarized below.

Row	Column	Location	Bobbin Coil Indication	+Point™	Comments
3	120	CLT + 0.2"	No	73%	leaking tube
1	120	CLT + 0.7"	Yes	80%	
2	121	CLT + 0.5"	Yes	45%	

The distance in the location column shown above is to the center of the indication. Bobbin coil was not able to detect the through-wall damage in tube Row 3, Column 120 but did detect wear that occurred further away from the top of the cold leg tubesheet in the other two tubes. The bobbin coil also did not show evidence of a loose part at this location. The part was removed before the rotating coil inspections were performed.

At the time of the call the licensee was evaluating the use of a bobbin coil 3-frequency mix technique to evaluate for loose part damage above the top of the tubesheet. The licensee also

ENCLOSURE

reviewed historical eddy current data in the loose part region from the bobbin coil examination conducted during the 2003 refueling outage. Tube Row 3, Column 120 and Tube Row 2, Column 121 had no detectable degradation or loose parts signals in the 2003 data. A bobbin coil indication measuring 40-percent through-wall, however, was present in Tube Row 1, Column 120 during the 2003 examination but was missed by both primary (manual) and secondary (computer) analysis. The 40-percent indication depth was estimated using 2003 bobbin coil phase angle analysis. This indication was estimated by 2004 bobbin coil phase angle analysis to have grown to 66-percent through-wall. Investigation into why this indication was not called by the computerized data screening (CDS) system used for secondary analysis revealed a set-up error in the CDS parameters. When the inspection parameters were entered into the CDS system for different regions of the HNP steam generators, a ½-inch gap (from ½ inch above the tubesheet to 1 inch above the tubesheet) was inadvertently created in the tube analysis. This CDS input error caused the computerized tube analysis to skip the portion of the tube containing the 40-percent through-wall bobbin indication in tube Row 1, Column 120 during the 2003 analysis.

Based on the 2004 eddy current test results, the licensee planned to insitu pressure test the tubes in Row 3, Column 120 and Row 1, Column 120. All three tubes with wear damage were to be plugged and stabilized. The licensee had planned to review the FOSAR tapes from the 2003 outage.

Based on vendor analysis of pre-outage data collected from the loose part monitors from all steam generators, the licensee planned a FOSAR at the top of the tubesheet in SG A during the 2004 outage. A small piece of material was detected during this examination and was removed from the SG.

At the conclusion of the call, the NRC staff expressed interest in the results from the review of the 2003 FOSAR tapes. In addition, the NRC staff indicated they would be evaluating the HNP information to determine if there were any issues with potential generic implications.
Finally, the NRC staff questioned why the licensee was not planning more rotating probe inspections at the top of the tubesheet given the bobbin coil examination did not detect the through-wall damage in Row 3, Column 120.

Subsequent to the conference call, the NRC staff was informed that the loose part that caused the damage in SG C was visible on the 2003 FOSAR inspection tape. Insitu pressure test results, including tests corresponding to a main steamline break pressure and three times the normal operating differential pressure (3X NODP), were also provided to the NRC staff. The indication in Row 1, Column 120 did not leak or burst at a 3X NODP pressure (the insitu test was a partial tube test). The indication in Row 3, Column 120 had a calculated temperature corrected leak rate of approximately 23 gallons per day at a steamline break pressure and did not burst at the 3X NODP proof test pressure. These insitu pressure test results demonstrated the tubes with loose part damage retained adequate structural integrity. The test results also provided data supporting that the SG had adequate leakage integrity.

Mr. James Scarola
Carolina Power & Light Company

Shearon Harris Nuclear Power Plant
Unit 1

cc:

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