

August 3, 2006

Mr. J. A. Stall
Senior Vice President, Nuclear and
Chief Nuclear Officer
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P.O. Box 14000
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SUBJECT: ST. LUCIE NUCLEAR PLANT, UNIT 2 — SUMMARY OF CONFERENCE CALL
WITH FLORIDA POWER AND LIGHT COMPANY REGARDING THE 2006
STEAM GENERATOR INSPECTION (TAC NO. MD1084)

Dear Mr. Stall:

On May 5, 2006, the U.S. Nuclear Regulatory Commission (NRC) staff participated in a conference call with Florida Power and Light Company (FPL) representatives regarding the steam generator inspection activities at St. Lucie Unit 2 during the SL2-16 refueling outage. Enclosed is a brief summary of the conference call prepared by the NRC staff. The materials provided by FPL in support of the calls are attached to this summary.

If you have any questions regarding this material, please contact me at (301) 415-3974.

Sincerely,

/RA/

Brendan T. Moroney, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-389

Enclosure: Conference Call Summary

cc w/enclosure: See next page

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ST. LUCIE PLANT

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CONFERENCE CALL SUMMARY

2006 STEAM GENERATOR TUBE INSPECTION ACTIVITIES

ST. LUCIE NUCLEAR PLANT, UNIT NO. 2

DOCKET NO. 50-389

On May 5, 2006, the Nuclear Regulatory Commission (NRC) staff conducted a conference call with representatives from St. Lucie Nuclear Plant, Unit 2 to discuss their ongoing steam generator (SG) tube inspections during the SL2-16 refueling outage. St. Lucie Unit 2 has two Combustion Engineering Model 3410 SGs with mill annealed Alloy 600 tube material. The tubes have an outside diameter of 0.75 inch and a nominal wall thickness of 0.048 inch. The tubes are explosively expanded for the full depth of the tubesheet and are supported by carbon steel lattice grids (eggcrates). The last inspection of the SG tubes was performed during the SL2-15 refueling outage in January 2005. The SGs are scheduled to be replaced at the next refueling outage in 2007. The licensee (Florida Power and Light Company) met with the NRC staff on April 20, 2006, to discuss the scope of the 2006 SG inspections. That meeting was summarized in an NRC letter dated May 11, 2006 (NRC Agencywide Documents Access and Management System No. ML061250269).

Prior to the May 5, 2006, call, the licensee provided a written response to a set of questions from the NRC staff. The questions are documented in a letter to the licensee dated April 17, 2006 (ML060960106) and the response is attached to this call summary. Additional clarifying information and information not included in the attached document is summarized below.

The licensee reported that primary-to-secondary leakage was below the detection limit of approximately 1 gallon per day during the cycle immediately preceding the outage.

No circumferential indications, degradation due to loose parts, or crack indications within wear scars had been detected. No new forms of degradation had been detected during this inspection.

The licensee identified 0.73 inch below the top of the tubesheet as the location of the deepest expansion transition. One indication had been found in the examined region below the top of the tubesheet. This was an axial indication attributed to primary water stress corrosion cracking in SG-A. The licensee believed this indication was in the fully-expanded region of the tube.

Axial outside diameter stress corrosion cracking identified at the top of the tubesheet was associated with either the sludge pile region or the expansion transition.

The bobbin probe was being used to inspect dings less than 5 volts in the straight tube sections. No cracking had been detected in dings at the time of the call.

Enclosure

A new retest technique was being used in this inspection to disposition RCL (retest for clarification) bobbin probe indications, as discussed in the attachment. The rotating probe was being operated at a slower speed this outage (when compared to the previous outage).

The number of eddy current flaw indications was significantly lower than expected based on past inspections at St. Lucie Unit 2. This was the one unexpected result noted by the licensee. In response to these findings, the licensee reviewed their eddy current data quality to ensure the quality of their 2006 inspection was as good as their previous inspections. With respect to data quality, the licensee concluded it was at least as high as in previous inspections based on the following factors: (1) eddy current analysts reported the data was "clean" (e.g., minimal noise from deposits), (2) the calibration standards were the same ones used in the previous inspection, (3) some of the data analysts had worked on the previous inspection, and (4) similar probes were used during the inspections.

The licensee offered the following possible explanations for the reduction in the number of indications: (1) the latest operating cycle (Cycle 15) was shorter than the previous cycle, (2) the hot-leg temperature was reduced approximately 3 degrees Fahrenheit after about 2 months into Cycle 15, (3) there were fewer significant operational transients in Cycle 15 (three transients) than in other recent cycles (e.g., seven transients during Cycle 14, including hurricanes that resulted in chemistry excursions), and (4) crack initiation rates may be significantly lower at the locations where cracking has not already been detected.

Detailed profiling to determine all in situ testing requirements had not been completed at the time of the call. The licensee explained that the final list of tubes for in situ testing would include all tubes with indications meeting the predefined screening criteria, as well as additional tubes. The additional tubes would be selected according to the significance of the indications, based on eddy current voltage and apparent dimensions. The licensee also noted that no leakage had been detected in the 29 in situ tests conducted during previous outages, and that these tests were performed at indications larger than those being detected during the 2006 outage.

Sludge lancing and foreign object search and retrieval were being performed in both SGs and were complete in SG-B at the time of the call. The licensee's attached written summary includes a list of five foreign objects discovered during prior outages and remaining in the SGs. In response to a question from the staff, the licensee stated that the oldest of these objects dates back to Cycle 2. For these parts, the licensee inspects and evaluates the need for plugging and stabilizing the surrounding tubes.

With respect to the attached Figure 1, the data plotted in the graph is for outside diameter flaws detected at the eggcrate supports, and "KSU" and "KSL" are the upper and lower Kolmogorov-Smirnov limits, respectively. The licensee indicated that there is no statistical difference between the Cycle 14 and Cycle 15 data sets. With respect to Figures 2 and 3, "OPCON-CY 15" refers to the SG tube integrity projections made following the previous SG tube inspections.

At the end of the call, the licensee was asked to inform the staff if they did not install sleeves, or if they found other unexpected results such as new degradation mechanisms or leakage or burst during an in situ pressure test. The licensee subsequently informed the staff that no sleeves were installed.