UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 13, 2012

Mr. Mano Nazar
Executive Vice President and
Chief Nuclear Officer
Florida Power & Light Co.
P. O. Box 14000
700 Universe Boulevard
Juno Beach, FL 33408-0420

SUBJECT: ST. LUCIE PLANT UNIT NO. 2 - SUMMARY OF THE STAFF'S REVIEW OF THE 2011 STEAM GENERATOR TUBE INSERVICE INSPECTIONS (TAC NO. ME7163)

Dear Mr. Nazar:

By letter dated September 20, 2011 (Agencywide Documents Access and Management System Accession No. ML11270A015), as supplemented by letter dated March 22, 2012 (ML12090A583), Florida Power and Light Company, the licensee, submitted information summarizing the results of the spring 2011 steam generator tube inspections performed during Refueling Outage 19 at St. Lucie Unit 2.

The U. S. Nuclear Regulatory Commission staff has completed its review of this report and concludes that the licensee provided the information required by its technical specifications and that no additional followup is required at this time. The staff's review of the report is enclosed.

Should you have any questions you can contact me by phone at 301-415-2788 or by email at Tracy.Orf@nrc.gov.

Sincerely,

Frederick E. Saba for

Tracy J. Orf, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-389

Enclosure:
Summary of the 2011 Steam Generator
Tube Inspections

cc w/encl: Distribution via Listserv

SUMMARY OF THE U. S. NUCLEAR REGULATORY COMMISSION

STAFF'S REVIEW OF ST. LUCIE PLANT UNIT NO. 2

2011 STEAM GENERATOR TUBE INSPECTIONS

DOCKET NO. 50-389

By letter dated September 20, 2011 (Agencywide Documents Access and Management System Accession No. ML11270A015), and supplemented by letter dated March 22, 2012 (ML12090A583), Florida Power and Light Company, the licensee, submitted information summarizing the results of the spring 2011 steam generator (SG) tube inspections performed during Refueling Outage 19 at St. Lucie, Unit 2 (St. Lucie 2).

St. Lucie 2 has two AREVA-NP Model 86/19TI replacement SGs. Each SG has 8999 thermally treated Alloy 690 tubes with an outside diameter of 0.75 inches and a wall thickness of 0.043 inches. During manufacturing, all tubes were hydraulically expanded at both ends over the full depth of the tubesheet. The tubesheet was drilled on a triangular pitch with 1.0-inch spacing, center-to-center. The radius of the row 1 U-bends is 4.134 inches. The U-bends in rows 1 through 15 were stress relieved after bending. Seven Type 410 stainless steel support plates, each 1.181 inches thick, support the vertical section of the tubes. The support plates have broached trefoil holes. Four sets of antivibration bars (AVBs), each 0.112 inches thick and made from Type 405 stainless steel, support the U-bend section of the tubes.

The licensee provided the scope, extent, methods, and results of their SG tube inspections in the documents referenced above. In addition, the licensee described corrective actions (i.e., tube plugging) taken in response to the inspection findings. The tubes in both SGs were inspected this outage.

After reviewing the information provided by the licensee, the staff has the following comments/observations:

- During Refueling Outage 19, the feedwater ring inspection port covers and bolting were replaced and tightened to specification for SGs A and B. All bolting and associated locking tabs were fully engaged.

- Wear indications were detected in the row 69 tubes at the apex of the tube where AVB 4 transitions into AVB 5 for SGs A and B. Although row 69 was the only row where apex wear was reported, a similar AVB configuration also exists at the transition of AVB 3/AVB 4 in row 40, and the transition of AVB 2/AVB 7 in row 17. It was indicated that the apex wear in row 69 is most likely attributed to possible over-insertion of the AVB 4/AVB 5 bar into the tube bundle at the location of the apex wear. Although it was reported that the AVB 4/AVB 5 bar remains within the design and manufacturing tolerances, the AVB causing the row 69 wear is reported to be situated close enough to cause the wear scars on the affected tubes. In addition, the licensee stated that the potential for tube wear at AVBs in row 69 is increased since it is much closer to the region of the generator that is most affected by general AVB wear.

ENCLOSURE

- The tube in row 88 column 93 in SG B was reported to have a tube shaving signal during the pre-service inspection. Rotating probe inspections during the first inservice inspection showed no evidence of the shaving signal (or any other foreign object) at that location. No rotating probe inspections were performed at these locations during the 2011 inspections.

- Approximately 5800 indications of wear were detected in approximately 1850 tubes in SG A. Approximately 3000 indications of wear were detected in approximately 1100 tubes in SG B. Although some wear was reported at the tube support plate elevations and at the appui (support positioning device), most of the wear is at the AVBs.

Based on a review of the information provided, the staff concludes that the licensee provided the information required by the St. Lucie 2 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.

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Sincerely,

/RA by Farideh Saba for/

Tracy J. Orf, Project Manager
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