

October 24, 2006

Mr. J. A. Stall  
Senior Vice President, Nuclear and  
Chief Nuclear Officer  
Florida Power and Light Company  
P.O. Box 14000  
Juno Beach, FL 33408-0420

SUBJECT: ST. LUCIE NUCLEAR PLANT, UNIT NO. 2 - REVIEW OF THE STEAM  
GENERATOR TUBE INSPECTIONS DURING THE SPRING 2005 OUTAGE  
(TAC NO. MC9192)

Dear Mr. Stall:

By letters dated February 11, 2005, June 15, 2005, November 28, 2005, and June 28, 2006, Florida Power & Light Company (FPL) submitted reports summarizing the steam generator (SG) tube inspections performed during the spring 2005 refueling outage (SL2-15) at St. Lucie Unit 2. The results of the U.S. Nuclear Regulatory Commission (NRC) staff review of these documents is enclosed.

Based on a review of the information provided, the NRC staff concludes that FPL provided the information required by the St. Lucie Unit 2 technical specifications. In addition, the staff concludes that there are no technical issues that warrant follow-up action 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.

This completes NRC staff's efforts under TAC No. MC9192. If you have any questions regarding this matter, 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: Review of SG  
Inspection Summary

cc: See next page

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## REVIEW OF STEAM GENERATOR INSPECTION SUMMARY REPORT

### 2005 STEAM GENERATOR TUBE INSPECTIONS AT ST. LUCIE UNIT 2

By letters dated February 11, 2005 (Agencywide Documents Access and Management System Accession Number ML050550032), June 15, 2005 (ML051720461), November 28, 2005 (ML053410482), and June 28, 2006 (ML061870466), Florida Power and Light Company (the licensee) submitted information summarizing the results of the 2005 steam generator (SG) tube inspections at St. Lucie Unit 2. These inspections were performed during the fifteenth refueling outage (SL2-15). In addition to these reports, the U.S. Nuclear Regulatory Commission (NRC) staff participated in a conference call concerning the 2005 SG tube inspections at St. Lucie Unit 2. This conference call was summarized by the staff in a letter dated April 8, 2005 (ML051030078).

Based on a review of these documents, the NRC staff prepared a request for additional information (RAI) that was forwarded to the licensee around the time of their subsequent (2006) SG tube inspections. Given that the 2006 SG tube inspections would be conducted prior to the licensee being able to respond to this RAI, the NRC staff factored these questions into the discussions it had with the licensee regarding the results of their 2006 tube inspections. These discussions were documented in a letter dated August 3, 2006 (ML062060255). The licensee subsequently responded to the RAI on the 2005 outage by letter dated August 29, 2006 (ML062490426).

St. Lucie Unit 2 has two Combustion Engineering Model 3410 SGs. The mill-annealed Alloy 600 SG tubes have an outside diameter of 3/4 inch and a nominal wall thickness of 0.048 inch. The tubes are explosively expanded for the full depth of the tubesheet at each end and are supported by a number of carbon steel lattice grid (i.e., eggcrate) tube supports, diagonal bars, and vertical straps.

During the 2005 SG tube inspections, a number of indications were coded as retest for clarification (RCL) because they were identified with a rotating probe as it was being removed from the tube at a rate greater than the rate at which the probe is qualified. The indications in question had not been identified during bobbin coil inspection. The NRC staff discussed these indications with representatives from St. Lucie during conference calls at the time of the outage. During the call the staff made several observations concerning the disposition of these flaws (refer to pages 5 and 6 of the conference call summary dated April 8, 2005). In its August 29, 2006, letter the licensee addressed the NRC's observations. The licensee compared the results of the 2005 tube inspections with the 2003 inspection results and with a predictive code. The licensee concluded that it had adequately dispositioned the RCL indications identified during the 2005 SG tube inspections. This conclusion was supported during the 2006 SG tube inspections, since no significant degradation was identified during this inspection (see call summary dated August 3, 2006).

By letter dated June 28, 2006, the licensee indicated that an error was made during the 2005 SG eddy current testing at St. Lucie Unit 2. During the 2005 SG inspections, a diagnostic inspection of an indication identified with a bobbin coil was performed using a rotating +Point™ coil. No defect was detected during the +Point™ coil examination and the tube was left in service. During the 2006 SG inspections, the licensee again performed a +Point™ coil

Enclosure

inspection after the indication was again detected during the bobbin coil examination. During the 2006 inspection, the +Point™ coil inspection confirmed the presence of a defect in the tube. A review of the 2005 data (in 2006) indicated that the +Point™ coil inspection did not include the entire target area and, therefore, confirm the presence of the flaw. This tube was in situ pressure tested and passed without any leakage or burst. The tube containing the flaw was plugged during the 2006 outage and a full review of the 2005 eddy current test data was performed. The full review of the 2005 data also identified one other flaw that was not fully inspected by +Point™ coil during the 2005 inspections. This tube was also plugged in 2006, and the licensee determined that there were no structural or leakage integrity issues associated with the tube being in service prior to the 2006 inspection. As a result of these findings, the 2006 rotating probe data were reviewed and no additional incomplete +Point™ coil tests were observed. The licensee determined that the incomplete tests were limited to one calibration group of the 2005 data.

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 (e.g., tube plugging or repair) taken in response to the inspection findings. Based on a review of the information provided, the NRC staff concludes that the licensee provided the information required by the St. Lucie Unit 2 technical specifications. In addition, the staff concludes that there are no technical issues that warrant follow-up action 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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