Florida Power & Light Company, 6501 S. Ocean Drive, Jensen Beach, FL 34957

March 22, 2012

L-2012-126
10 CFR 50.55a
10 CFR 50.36

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Re: St. Lucie Unit 2
Docket No. 50-389
Response to SL2-19 Steam Generator Report RAIs

References:

1) FPL Licensing Correspondence to the NRC, L-2011-339, dated September 20, 2011, "Refueling Outage SL2-19 Steam Generator Tube Inspection Report."

2) NRC Letter from Tracy J. Orf to Mano Nazar "St. Lucie Plant, Unit 2 – Request for Additional Information Regarding the 2011 Steam Generator Tube Inservice Inspection Report (TAC NO. ME7163)", dated February 22, 2012. (NRC ADAMS Ascension # ML12046A808).

In accordance with Technical Specification 6.9.1.12, the SG tube inspection report for the St. Lucie Unit 2 SL2-19 eddy current inspection was provided to the NRC via Reference 1. On February 22, 2012, via Reference 2, the NRC issued a request for additional information (RAI) concerning the Unit 2 steam generator inspection report of Reference 1.

Attached is FPL's response to the RAI.

Please contact Ken Frehafer at (772) 467-7748 should you have any questions regarding this submittal.

Sincerely,

ES Katzman

Eric S. Katzman
Licensing Manager
St. Lucie Plant

ESK/KWF

Attachment

A 001
NRR

St. Lucie Unit 2
Response to SL2-19 Steam Generator Report RAIs

Question #1:

Discuss the results of the tube plug inspections. Were all of the plugs inspected to confirm that all were present and that none exhibited any signs of degradation? If degradation was observed, what was observed and what corrective actions were taken?

St. Lucie Response:

At the completion of tube-plugging activities during the End-of-Cycle 17 (EOC-17) refueling outage in 2009, there were eight (8) tubes plugged in Steam Generator 2A and six (6) tubes plugged in Steam Generator 2B, for a total of fourteen (14) plugged tubes.
Prior to starting the eddy current examination at the End-of-Cycle 18 (EOC-18) refueling outage in 2011, all of the hot-leg and cold-leg plugs in the eight (8) plugged tubes in Steam Generator 2A and six (6) plugged tubes in Steam Generator 2B were confirmed to be present.
In addition, all of the hot-leg and cold-leg plugs were found to be free from degradation, based on the visual examination.

Question #2:

Discuss the results of the feedwater ring inspection port inspections. Were all the bolts/nuts fully engaged? If not, what actions, if any, were taken to address this condition?

St. Lucie Response:

During the EOC-17 refueling outage, a visual examination of the steam drum and related secondary side components was performed in both steam generators.

In SG 2A, six (6) of the eight (8) bolts on the two feed ring inspection port covers were only finger tight, as documented in St. Lucie's Corrective Action Program (in AR #00525321).

In SG 2B, one closure bolt on one of the two feed ring inspection port covers was backed out approximately 0.25", as documented in St. Lucie's Corrective Action Program (in AR #00525199) .

Following the EOC-17 inspection, the inspection port cover bolting for both steam generators was re-tightened to specification.

During the EOC-18 refueling outage, the feed water ring inspection port covers and bolting were replaced and tightened to specification. All bolting and associated locking tabs were fully engaged.

Question #3:

Confirm that the wear indications highlighted in the row 69 tubes are occurring at the apex of the tube where anti-vibration bar (AVB) 4 transitions into AVB 5 (i.e., the bottom of the AVB 4/5 U-bend support). Is this the only row where such wear ("apex wear") has been observed? If so, provide any insights on why this is the only row affected since it appears similar conditions exist at other locations (e.g., row 40 for AVB 3/6).

St. Lucie Response:

Yes, those wear indications in the row 69 tubes are occurring at the apex of the tube where anti-vibration bar (AVB) 4 transitions into AVB 5.

Yes, Row 69 was the only row where "apex wear" was reported.

A similar AVB configuration also exists at the transition of AVB3/AVB6 in Row 40, and the transition of AVB2/AVB7 in Row 17.

After the "apex wear" was reported in Row 69, the bobbin data for Rows 17, 40 and 69 was reviewed a second time. No "apex wear" indications were detected in the u-bend apex in Rows 17 or 40.

The "apex wear" in Row 69 is most likely due to a possible over-insertion of the AVB4/AVB5 bar into the tube bundle at the location of the apex wear. Although the position of the AVB4/AVB5 bar remains within the design and manufacturing tolerances, the AVB causing the Row 69 wear is just close enough to cause the wear scars on the affected tubes. In addition, 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. In contrast, the tubes in Rows 17 and 40 are more distant from the regions of the steam generator generally affected by AVB wear and have shown no wear based on the most recent examination.

In conclusion, the areas of potential similar wear to that experienced at row 69 have been inspected and no additional wear was identified. The wear indications did not challenge the tube's structural integrity, however, these locations will continue to be reviewed during future inspections.

Question #4:

Discuss the results of your condition monitoring assessment. Did all tubes satisfy the structural integrity performance criteria? Was the accident induced leakage performance criteria satisfied? Were the number and severity of indications detected within your prior outage projections? If not, please discuss any corrective actions that were taken.

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St. Lucie Response:

All tubes satisfied the structural integrity and accident-induced leakage performance criteria based on the condition monitoring (CM) evaluation performed at EOC-18. No tubes required in-situ pressure testing for either tube burst or leakage. Therefore, all tubes met the structural and leakage integrity requirements of NEI 97-06. The number and severity of the detected degradation for all mechanisms were conservatively predicted by the EOC-17 operational assessment (OA). Severity was measured in terms of the observed maximum depth of worst indication at EOC-18 and how well it was predicted by the prior cycle OA. This was done for all degradations mechanisms, and for all cases, the OA projections bounded the observed results. Therefore, the OA methods and assumptions were confirmed and corrective actions were not necessary.

Question #5:

Discuss whether the tube in row 88, column 93 in SG B, with a previously reported "tube shaving signal," was inspected. In addition, confirm that the "tube shaving signal" is still no longer present.

St. Lucie Response:

As a follow-up to the 2007 pre-service baseline examination, the cold-leg top of tube sheet location in SG B, row 88, column 93 was examined with the rotating coil during the EOC-17 outage in 2009. The location was reported as "NDD" in 2009, and there was no evidence of a tube shaving signal (or any other foreign object) at that location. Thus, the location was not re-examined with the rotating coil during the EOC-18 outage in 2011.