



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

April 9, 2018

Mr. Mano Nazar
President and Chief Nuclear Officer
Nuclear Division
Florida Power & Light Company
Mail Stop EX/JB
700 Universe Blvd.
Juno Beach, FL 33408

SUBJECT: ST. LUCIE PLANT UNIT NO. 2 - REVIEW OF THE SPRING 2017 STEAM
GENERATOR TUBE INSPECTION REPORT FOR REFUELING OUTAGE 23
(EPID L-2017-LRO-0080)

Dear Mr. Nazar:

By letter dated September 13, 2017 (Agencywide Documents Access and Management System Accession No. ML17257A080), Florida Power and Light Company submitted a report of the spring 2017 steam generator tube inspections performed at St. Lucie Plant Unit No. 2. These inspections were performed during Refueling Outage 23 in accordance with Technical Specification (TS) Section 6.8.4.1.

The Nuclear Regulatory Commission (NRC) staff has completed its review of the report provided, concludes that the licensee provided the information required by their TSs, and that no additional followup is required at this time. The NRC staff's review of the report is enclosed.

Sincerely,

A handwritten signature in black ink, appearing to read "Perry H. Buckberg", is written over a horizontal line.

Perry H. Buckberg, Senior Project Manager
Plant Licensing Branch II-2
Division of Operator Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-389

Enclosure:
As stated

cc: ListServ

REVIEW OF THE SPRING 2017 STEAM GENERATOR TUBE
INSERVICE INSPECTION REPORT
ST. LUCIE PLANT UNIT NO. 2
DOCKET NO. 50-389
EPID L-2017-LRO-0080

By letter dated September 13, 2017 (Agencywide Documents Access and Management System Accession No. ML17257A080), Florida Power & Light Company (the licensee) submitted the results of the steam generator (SG) inspections performed at St. Lucie Plant Unit No. 2 during the twenty-third refueling outage (RFO 23).

St. Lucie Plant Unit No. 2 has two Model 86/19TI replacement SGs that were manufactured by AREVA and installed in 2007. Each SG has 8,999 thermally treated Alloy 690 tubes with a nominal outside diameter of 0.75 inches and a nominal 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 tube support plates, each 1.181 inches thick with broached trefoil holes, support the vertical section of the tubes. Four sets of anti-vibration 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 September 13, 2017, inspections report. In addition, the licensee described corrective actions (e.g., tube plugging) taken in response to the inspection findings.

Based on its review of the report submitted, the staff has the following observations and comments:

- A visual inspection of the upper internals section of both SGs, including the feedwater rings and supports, showed no damage or deficiencies.
- Tube wear, located at the u-bend apex due to interaction with AVBs, was detected using the bobbin probe on some tubes in row 69 of both SGs, and one tube in row 40 of SG 2A. Row 69 and row 40 are located just below the AVB 4/5 and AVB 3/6 design depth locations, respectively. Prior to the RFO 23 inspection, u-bend apex wear had only been identified in row 69 tubes. The deepest u-bend apex wear indication was 33-percent through-wall depth (TWD) in SG 2A and 9 percent TWD in SG 2B, both in row 69. The highest growth rate of previously-identified u-bend apex wear indications was 4 percent TWD, since the previous inspection in RFO 22. The u-bend apex wear indication at the AVB 3/6 location in SG 2A measured 6 percent TWD.

Based on a review of the information provided, the NRC staff concludes that the licensee provided the information required by their technical specifications. In addition, the staff concludes 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. Although the number of wear indications is greater than the number of wear indications found at other AREVA SGs of similar age, the depths of these indications (i.e., the severity) are comparable to those observed at other plants.

Enclosure

SUBJECT: ST. LUCIE PLANT UNIT NO. 2 - REVIEW OF THE SPRING 2017 STEAM
GENERATOR TUBE INSPECTION REPORT FOR REFUELING OUTAGE 23
(EPID L-2017-LRO-0080) DATED APRIL 9, 2018

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ADAMS Accession No. ML18092A032

*by memorandum

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