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

December 17, 2019

Mr. Eric Carr
President and Chief Nuclear Officer
PSEG Nuclear LLC - N09
P.O. Box 236
Hancocks Bridge, NJ 08038

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNIT NO.1 - REVIEW OF THE FALL 2017 STEAM GENERATOR TUBE INSPECTION REPORT (EPID L-2018-LRO-0221)

Dear Mr. Carr:

By letter dated May 7, 2018 (Agencywide Documents Access and Management System Accession No. ML18127A119) PSEG Nuclear, LLC. (PSEG or the licensee) submitted its report summarizing the results of the fall 2017 steam generator tube inspections at Salem Nuclear Generating Station, Unit No. 1. These inspections were performed during the 25th refueling outage. The report was submitted in accordance with Salem, Unit No. 1, Technical Specification 6.9.1.10, "Steam Generator Tube Inspection Report."

The U.S. Nuclear Regulatory Commission staff has completed its review of PSEG's submittal, as documented in the enclosed evaluation. The staff concludes that the licensee has provided the information required by the technical specifications and that no additional follow up is required at this time.

If you have any questions, please contact me at 301-415-4125 or James.Kim@nrc.gov.

Sincerely,

/RA/

James S. Kim, Project Manager
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-272

Enclosure:
Review of Report

cc: Listserv

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNIT NO.1 - REVIEW OF THE FALL 2017 STEAM GENERATOR TUBE INSPECTION REPORT (EPID L-2018-LRO-0221) DATED DECEMBER 17, 2019

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ADAMS Accession No.: ML19337A905 *by memorandum

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OFFICE OF NUCLEAR REACTOR REGULATION

REVIEW OF THE FALL 2017 STEAM GENERATOR TUBE INSPECTION REPORT

PERFORMED DURING THE 25TH REFUELING OUTAGE

PSEG NUCLEAR LLC

SALEM NUCLEAR GENERATING STATION, UNIT NO. 1

DOCKET NO. 50-272

By letter dated May 7, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18127A119), PSEG Nuclear, LLC (the licensee) submitted information summarizing the results of the fall 2017 steam generator (SG) inspections at Salem Nuclear Generating Station (Salem), Unit No. 1. The inspections were performed during the 25th refueling outage (RFO 25). In addition, by letter dated December 4, 2017 (ADAMS Accession No. ML17332A603), the U.S. Nuclear Regulatory Commission (NRC) staff documented a call held with the licensee on October 27, 2017, during the fall 2017 refueling outage.

Salem, Unit No. 1, has four Westinghouse Model F SGs, all containing 5,626 U-bend thermally treated Alloy 600 tubes. Each tube has a nominal outside diameter of 0.688 inches and a nominal wall thickness of 0.040 inches. During SG fabrication, the tubes were hydraulically expanded at both ends over the full depth of the tubesheet. The tubesheet was drilled on a square pitch with 0.98-inch spacing. The U-bends in rows 1 through 10 were stress-relieved after bending. Eight Type 405 stainless steel support plates, which have broached quatrefoil holes, support the vertical section of the tubes, and chrome-plated Alloy 600 anti-vibration bars support the U-bend section of the tubes.

The licensee provided the scope, extent, methods, and results of its SG tube inspections in the documents referenced above. In addition, the licensee described corrective actions, such as tube plugging, taken in response to the inspection findings.

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

- As noted in the outage call summary dated December 4, 2017, the licensee identified and tracked a small (< 10 gallons per day) primary-to-secondary leak in SG 13 from May 15-28, 2017. The leak decreased to below detectable amounts on May 28, 2017, and remained undetectable through the end of the operating cycle. Upon inspection during Refueling Outage (RFO) 25, the source of the leak was identified as the tube in row 2 column 91 of SG 13, and the cause of the leak was determined to be foreign object wear. The licensee plugged six tubes during RFO 25 (all in SG 13, due to foreign object wear). There was no cracking detected during RFO 25.

- The licensee performed chemical cleaning and sludge lancing on the SGs during the outage and removed more than 2,000 pounds of sludge from each SG (~1,900 pounds from chemical cleaning and approximately 200 pounds from sludge lancing).

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

Principal Contributor: Andrew Johnson

Date: December 17, 2019