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

July 13, 2015

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

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNIT NO. 2 - REVIEW OF STEAM GENERATOR TUBE INSPECTION REPORT FOR THE SPRING 2014 REFUELING OUTAGE 20 (TAC NO. MF5117)

Dear Mr. Braun:

By letters dated October 30, 2014, and May 21, 2015 (Agencywide Documents Access and Management System Accession Nos. ML14303A032 and ML15141A117, respectively), PSEG Nuclear LLC (PSEG), submitted information summarizing the results of the spring 2014 steam generator tube inspections performed at Salem Nuclear Generating Station (Salem), Unit No. 2. These inspections were performed during Refueling Outage 20. This information was submitted in accordance with Salem, Unit No. 2, Technical Specification (TS) 6.9.1.10, "Steam Generator Tube Inspection Report."

The U.S. Nuclear Regulatory Commission (NRC) staff has completed its review of your submittals, as documented in the enclosed evaluation. The NRC staff concludes that PSEG has provided the information required by the TSs and that no additional followup is required at this time. This completes the NRC staff's efforts for TAC No. MF5117.

If you have any questions, please contact me at 301-415-1603 or Carleen.Parker@nrc.gov.

Sincerely,

Carleen J. Parker, Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-311

Enclosure:
Review of Report

cc w/enclosure: Distribution via Listserv

OFFICE OF NUCLEAR REACTOR REGULATION

REVIEW OF THE SPRING 2014 STEAM GENERATOR TUBE INSPECTION REPORT

PERFORMED DURING REFUELING OUTAGE TWENTY

PSEG NUCLEAR LLC

SALEM NUCLEAR GENERATING STATION, UNIT NO. 2

DOCKET NO. 50-311

## 1.0 INTRODUCTION

By letters dated October 30, 2014, and May 21, 2015 (Agencywide Documents Access and Management System Accession Nos. ML14303A032 and ML15141A117, respectively), PSEG Nuclear, LLC (the licensee) submitted information summarizing the results of the spring 2014 steam generator (SG) tube inspections performed at Salem Nuclear Generating Station (Salem), Unit No. 2. These inspections were performed during Refueling Outage (RFO) 20.

## 2.0 BACKGROUND

Salem, Unit No. 2, has four AREVA Model 61/19T replacement SGs, which were installed in May of 2008. Each SG contains 5,048 U-bend thermally treated Alloy 690 tubes. Each tube has a nominal outside diameter of 0.750 inches and a nominal wall thickness of 0.043 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 triangular pitch. The U-bends in rows 1 through 16 were stress-relieved after bending. Eight stainless steel (Type 410) support plates, which have broached trefoil holes, provide lateral tube support to the vertical section of the tubes, and three sets of stainless steel (Type 405M) anti-vibration bars support the U-bend section of the tubes.

## 3.0 EVALUATION

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.

After reviewing the information provided by the licensee, the U.S. Nuclear Regulatory Commission (NRC) staff has the following comments and observations:

The nuts that were previously found loose and retightened during RFO 17 and the nuts that were inaccessible and left as-is were not inspected during RFO 20. According to the licensee, the nuts that were retightened in RFO 17 were not found to be loose in RFO 18; the nuts that

were left as-is remain bounded by the evaluations performed in RFO 17 and RFO 18, which determined that the conditions within the upper internals did not require re-examination as of RFO 20.

Wear at the tube support plates was observed in the tube located in row 1, column 63, in three of the four SGs. All three of these tubes were stabilized and plugged.

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 NRC 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 B. Johnson

Date: July 13, 2015

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PSEG Nuclear LLC - N09
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