



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

March 26, 2014

Mr. Thomas Joyce
President and Chief Nuclear Officer
PSEG Nuclear LLC
P.O. Box 236, N09
Hancocks Bridge, NJ 08038

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNIT 2 – REVIEW OF THE FALL
2012 STEAM GENERATOR TUBE INSERVICE INSPECTIONS DURING
REFUELING OUTAGE 2R19 (TAC NO. MF1783)

Dear Mr. Joyce:

By letter dated May 9, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13133A083), as supplemented by letter dated January 10, 2014 (ADAMS Accession No. ML14010A428), PSEG Nuclear LLC (PSEG) submitted information summarizing the results of their fall 2012 steam generator (SG) tube inspections performed during the 19th refueling outage 2R19 at Salem Nuclear Generating Station, Unit 2 (Salem 2). In addition to these reports, the Nuclear Regulatory Commission (NRC) staff summarized a conference call held with PSEG, concerning the 2012 SG tube inspections, in a letter dated May 10, 2013 (ADAMS Accession No. ML13109A235).

The NRC staff has completed its review of your submittals, as documented in the enclosure. The staff concludes that PSEG has provided the information required by the Salem 2 technical specifications and that no additional follow-up is required at this time. This completes the NRC staff efforts for Technical Assignment Control (TAC) No. MF1783.

If you have any questions regarding this matter, I may be reached at 301-415-3204 or at John.Hughey@nrc.gov.

Sincerely,

A handwritten signature in black ink, reading "John D. Hughey", is positioned above the typed name.

John D. Hughey, Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-311

Enclosure:
Review of 2012 SG Tube Inspections

cc w/encl: Distribution via Listserv



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SUMMARY OF THE OFFICE OF NUCLEAR REACTOR REGULATION
REVIEW OF THE STEAM GENERATOR TUBE INSPECTION REPORT
FOR THE 2R19 REFUELING OUTAGE IN FALL 2012
SALEM NUCLEAR GENERATING STATION, UNIT 2
DOCKET NO. 50-311

By letter dated May 9, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13133A083), as supplemented by letter dated January 10, 2014 (ADAMS Accession No. ML14010A428), PSEG Nuclear LLC (PSEG or the licensee) submitted information summarizing the results of their fall 2012 steam generator (SG) tube inspections performed during refueling outage 2R19 at Salem Nuclear Generating Station, Unit 2 (Salem 2).

Salem 2 has four AREVA Model 61/19T SGs, each of which 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.

PSEG provided the scope, extent, methods and results of their SG tube inspections in the submittals referenced above. In addition, the licensee described corrective actions (i.e., tube plugging) taken in response to the inspection findings. The tubes in all four SGs were inspected during the 2R19 refueling outage in the fall of 2012.

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

- As of the 2R19 outage, the SGs had operated for approximately 50 effective full-power months.
- There are two inaccessible nuts on secondary side components (hatches, camera ports). Other nuts on these components were identified as being loose in a prior inspection. The licensee stated that it is investigating additional new/modified tooling for the two inaccessible nuts.
- In 3 of the 4 SGs, wear was identified at a tube support plate in the tube located in row 1, column 63. Although wear at the tube support plates normally tends to be random,

Enclosure

the licensee did not identify any unique cause related to the wear observed on these specific tubes. Only 19 tubes were identified with wear at the tube support plates in all four SGs. The licensee plans to inspect these tubes during the next refueling outage.

Based on the review of the information provided, the NRC staff concludes that PSEG provided the information required by the Salem 2 technical specifications. In addition, the NRC staff concludes that there are no technical issues that warrant follow-up 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: A. Obodoako

Date: March 26, 2014

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Sincerely,

/ra/

John D. Hughey, Project Manager
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Division of Operating Reactor Licensing
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*by memo dated

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