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

April 2, 2018

Mr. Joseph W. Shea
Vice President, Nuclear Regulatory Affairs
and Support Services
Tennessee Valley Authority
1101 Market Street, LP 4A
Chattanooga, TN 37402-2801

SUBJECT: WATTS BAR NUCLEAR PLANT, UNIT 1 – REVIEW OF THE SPRING 2017 STEAM GENERATOR TUBE INSPECTION REPORT (CAC NO. MG0027; EPID L-2017-LRO-0023)

Dear Mr. Shea:

By letter dated July 28, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17209A554), Tennessee Valley Authority (the licensee) submitted information to the U.S. Nuclear Regulatory Commission (NRC) summarizing the results of the spring 2017 steam generator tube inspections performed during refueling outage U1R14 at the Watts Bar Nuclear Plant, Unit 1. The report was submitted in accordance with the requirements of Technical Specification (TS) 5.7.2.12, "Steam Generator (SG) Program."

The NRC staff has completed its review of the information provided and concludes that the licensee provided the information required by its TS. No followup is required at this time. A summary of the staff's review is enclosed.

If you have any questions, please contact me at 301-415-6020 or via e-mail at Robert.Schaaf@nrc.gov.

Sincerely,

Robert G. Schaaf, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-390

Enclosure:
Review of the Steam Generator Tube
Inspection Report

cc: Listserv

STAFF REVIEW OF SPRING 2017 STEAM GENERATOR TUBE

INSERVICE INSPECTIONS PERFORMED DURING REFUELING OUTAGE U1R14

TENNESSEE VALLEY AUTHORITY

WATTS BAR NUCLEAR PLANT, UNIT 1

DOCKET NO. 50-390

By letter dated July 28, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17209A554), Tennessee Valley Authority (the licensee) submitted the results of the steam generator (SG) inspections performed at Watts Bar Nuclear Plant, Unit 1. These inspections were performed during the Unit 1, 14th refueling outage (U1R14).

The four Model 68AXP SGs at Watts Bar Nuclear Plant, Unit 1, were designed by Westinghouse, fabricated by Doosan Heavy Industry and Construction, and installed in 2006. Each SG contains 5,128 thermally treated Alloy 690 tubes. Each tube has a nominal outside diameter of 0.75 inches and a nominal wall thickness of 0.043 inches. The tubes were hydraulically expanded at both ends for the full depth of the tubesheet. The SGs have an integral preheater. The tubes are supported by Type 409 Stainless Steel lattice grids and some of the lattice grids only support a fraction of the tubes. The tubes installed in rows 1 through 38 were thermally stress relieved over their entire length, after bending.

The licensee provided the scope, extent, methods, and results of its SG tube inspections in the letter dated July 28, 2017. 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 NRC staff has the following observation and comment:

- Prior to performing foreign object search and retrieval (FOSAR) inspections, sludge, scale, foreign objects, and other deposit accumulations at the top of the tubesheet were removed via the sludge lancing process. The FOSAR inspections of all four SGs included visual examination of tube bundle periphery tubes from the hot leg and cold leg annulus and center "no tube" lane. Six foreign objects were removed from the top of the tubesheet region and six objects remain on the secondary side among the four SGs. The foreign objects remaining are all small pieces of metal, wires, and bristles. Foreign objects not retrieved were characterized and analyzed to demonstrate acceptable continued operation without exceeding the performance criteria. A limited top of tubesheet in-bundle visual inspection was also performed in each SG for the purpose of assessing and trending the level of hardened deposit buildup in the kidney region.

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

Enclosure

SUBJECT: WATTS BAR NUCLEAR PLANT, UNIT 1 – REVIEW OF THE SPRING 2017 STEAM GENERATOR TUBE INSPECTION REPORT (CAC NO. MG0027; EPID L-2017-LRO-0023) DATED APRIL 2, 2018

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ADAMS Accession No.: ML18082A052 ***via memorandum**

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