



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

May 23, 2018

Ms. Cheryl A. Gayheart  
Regulatory Affairs Director  
Southern Nuclear Operating Company, Inc.  
P. O. Box 1295, Bin 038  
Birmingham, AL 35201-1295

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT, UNIT 1 – REVIEW OF THE  
REFUELING OUTAGE 20 STEAM GENERATOR TUBE INSPECTION REPORT  
(EPID L-2017-LRO-0036)

Dear Ms. Gayheart:

By letter dated September 27, 2017 (Agencywide Document Access and Management System Accession No. ML17270A321) Southern Nuclear Operating Company, Inc. (the licensee) submitted information summarizing the results of the spring 2017 steam generator (SG) inspections at Vogtle Electric Generating Plant, Unit 1. These inspections were performed during the 20th refueling outage during the spring of 2017. The SG tube inspection report was submitted in accordance with Technical Specification 5.6.10, "Steam Generator Tube Inspection Report."

The U.S. Nuclear Regulatory Commission (NRC) staff has completed its review of the information provided and concludes that the licensee provided the information required by their technical specifications and no follow-up is required at this time. The NRC staff's review of the report is enclosed.

If you have any questions, please contact me at (301) 415-3229 or via email at [Michael.Orenak@nrc.gov](mailto:Michael.Orenak@nrc.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Michael Orenak".

Michael Orenak, Project Manager  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-424

cc: Listserv

## REVIEW OF THE REFUELING OUTAGE 20 STEAM GENERATOR

### TUBE INSPECTION REPORT

#### SOUTHERN NUCLEAR OPERATING COMPANY

#### VOGTLE ELECTRIC GENERATING PLANT, UNIT 1

#### DOCKET NO. 50-424

By letter dated September 27, 2017 (Agencywide Document Access and Management System Accession No. ML17270A321) Southern Nuclear Operating Company, Inc. (the licensee) submitted a report summarizing the results of the spring 2017 steam generator (SG) inspections at the Vogtle Electric Generating Plant, Unit 1 (Vogtle). These inspections were performed during the 20th refueling outage (RFO 20).

Vogtle has four Westinghouse Model F SGs, each of which contains 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. Type 405 stainless steel support plates, which have broached quatrefoil holes, support the vertical section of the tubes, and anti-vibration bars support the U-bend section of the tubes.

The licensee provided the scope, extent, methods, and results of the SG tube inspections in the letter referenced above. In addition, the licensee described corrective actions (e.g., tube plugging) taken in response to the inspection findings.

Based on the review of the information provided, the U.S. Nuclear Regulatory Commission (NRC) staff has the following observations and comments:

- The inspection scope in all four SGs was expanded from 50 percent to 100 percent of the hot-leg top-of-tubesheet, as a result of detecting 10 cracking indications:
  - Five circumferential Outer Diameter Stress Corrosion Cracking (ODSCC) indications were found at the hot-leg top-of-tubesheet expansion transition.
  - Four circumferential Pressurized Water Stress Corrosion Cracking (PWSCC) indications were found within the hot-leg tubesheet region.
  - One axial PWSCC indication was found at the hot-leg top-of-tubesheet expansion transition.
- All tubes with cracking indications were plugged.
- A cladding anomaly was noted in the SG 1 cold-leg channel head, approximately 14 inches from the divider plate and almost 4 inches below the primary face of the tubesheet. It measured approximately 7/16 inch long, and 1/8 inch to 3/16 inch wide. The anomaly was evaluated as acceptable for continued operation with no repair required in RFO 20. The anomaly will be monitored by visual inspections of the SG 1 channel head in future outages.

Based on a review of the information provided, the NRC staff concludes that the licensee provided the information required by Technical Specification 5.6.10, "Steam Generator Tube Inspection Report." 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.

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT, UNIT 1 – REVIEW OF THE  
REFUELING OUTAGE 20 STEAM GENERATOR TUBE INSPECTION REPORT  
(EPID L-2017-LRO-0036) DATED MAY 23, 2018

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