



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

August 9, 2022

Cheryl A. Gayheart
Regulatory Affairs Director
Southern Nuclear Operating Co., Inc.
3535 Colonnade Parkway
Birmingham, AL 35243

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT, UNIT 1 – REVIEW OF THE
REFUELING OUTAGE 1R23 (FALL 2021) STEAM GENERATOR TUBE
INSPECTION REPORT (EPID L-2022-LRO-0030)

Dear Ms. Gayheart:

By letter dated April 1, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22091A261), Southern Nuclear Operating Company (SNC, the licensee) submitted information summarizing the results of the steam generator (SG) inspections performed at Vogtle Electric Generating Plant, Unit 1, during refueling outage 23 fall 2021). The licensee provided additional information concerning the inspections in a letter dated July 19, 2022 (ML22200A300). 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 by SNC and concludes that the licensee provided the information required by Vogtle, Unit 1, 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) 415-3100 or via email at John.Lamb@nrc.gov.

Sincerely,

John G. Lamb, Senior Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-424

Enclosure:
Review of the SG Tube Inspection Report

cc: Listserv

REVIEW OF THE REFUELING OUTAGE 23 STEAM GENERATOR

TUBE INSPECTION REPORT

SOUTHERN NUCLEAR OPERATING COMPANY

VOGTLE ELECTRIC GENERATING PLANT, UNIT 1

DOCKET NO. 50-424

By letter dated April 1, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22091A261), Southern Nuclear Operating Company (SNC, the licensee) submitted information summarizing the results of the steam generator (SG) inspections performed during refueling outage (RFO) 23 (fall 2021) at Vogtle Electric Generating Plant (Vogtle), Unit 1. The licensee provided additional information concerning the inspections in a letter dated July 19, 2022 (ML22200A300).

Vogtle, Unit 1, 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 letters referenced above. In addition, SNC described corrective actions (e.g., tube plugging), if any were 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:

- Circumferential outside diameter stress corrosion cracking (ODSCC) indications were reported in eight tubes at the top of the tubesheet hot leg expansion transition. Percent degraded area (PDA) for these indications, as measured by eddy current, ranged from less than 5 percent to approximately 30 percent. Six of the eight indications had a precursor eddy current signal at the previous inspection. The two indications with the lowest PDA had no precursor signal at the RFO 22 inspection. All tubes with circumferential indications during RFO 23 were plugged and stabilized. No tubes exhibited degradation in excess of the condition monitoring limits and, therefore, no in situ pressure tests were required.
- The Vogtle, Unit 1, Circumferential ODSCC at Expansion Transition Flaw Maximum Depth Distribution histogram (Figure 2 in ML22200A300) includes detection during look-back analysis (review of prior outage inspection data at the crack location after initial crack detection in the field). This results in a greater number of indications detected at lower maximum depths relative to presenting only the indications detected during initial inspection in the field.

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 staff concludes that there are no technical issues that warrant additional 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 1R23 STEAM GENERATOR TUBE INSPECTION REPORT (EPID L-2022-LRO-0030) DATED AUGUST 9, 2022

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