



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

January 18, 2022

Mr. Robert T. Simril
Site Vice President
Catawba Nuclear Station
Duke Energy Carolinas, LLC
4800 Concord Road
York, SC 29745

SUBJECT: CATAWBA NUCLEAR STATION, UNIT 2 – REVIEW OF THE SPRING 2021
STEAM GENERATOR TUBE INSPECTION REPORT (EPID L-2021-LRO-0043)

Dear Mr. Simril:

By letter dated August 2, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21214A160), Duke Energy Carolinas, LLC (the licensee), submitted information summarizing the results of the spring 2021 steam generator (SG) inspections performed at Catawba Nuclear Station, Unit 2, during refueling outage 24. The U.S. Nuclear Regulatory Commission (NRC) staff held a conference call with the licensee on April 12, 2021, regarding the ongoing SG inspection activities at Catawba Nuclear Station, Unit 2. A summary of the conference call regarding the spring 2021 SG inspections is available in ADAMS under Accession No. ML21133A004. The licensee provided additional information concerning the inspections in a letter dated December 14, 2021 (ADAMS Accession No. ML21348A113).

The NRC staff has completed its review of the report and concludes that the licensee provided the information required by their technical specifications and that no additional follow-up is required at this time. The enclosure documents the NRC staff's review of the submittal.

If you have any questions, please contact me at 301-415-0615 or via e-mail at Zackary.Stone@nrc.gov.

Sincerely,

Zackary R. Stone, Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-414

Enclosure:
Review of Steam Generator Tube
Inspection Report

cc: Listserv

REVIEW OF THE SPRING 2021 STEAM GENERATOR

TUBE INSPECTION REPORT

DUKE ENERGY CAROLINAS, LLC

CATAWBA NUCLEAR STATION, UNIT 2

DOCKET NO. 50-414

By letter dated August 2, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21214A160), Duke Energy Carolinas, LLC (the licensee), submitted information summarizing the results of the spring 2021 steam generator (SG) inspections performed at Catawba Nuclear Station, Unit 2, (Catawba Unit 2) during refueling outage 24. The U.S. Nuclear Regulatory Commission (NRC) staff held a conference call with the licensee on April 12, 2021, regarding the ongoing SG inspection activities at Catawba Unit 2. A summary of the conference call regarding the spring 2021 SG inspections is available in ADAMS under Accession No. ML21133A004. The licensee provided additional information concerning the inspections in a letter dated December 14, 2021 (ADAMS Accession No. ML21348A113).

Catawba Unit 2 has four Westinghouse Model D5 SGs, which are designated 2A through 2D. Each SG has 4,570 thermally treated Alloy 600 tubes with a nominal outside diameter of 0.750 inches and a nominal wall thickness of 0.043 inches. The tubes are hydraulically expanded for the full depth of the tubesheet at each end. The tubes are supported by stainless steel plates with quatrefoil-shaped broached holes. The U-bend region of the tubes in rows 1 through 9 were thermally treated after bending to reduce stress. At the end-of-cycle (EOC) 24, the SGs had 29.97 effective full power years of operation.

The licensee provided the scope, extent, methods, and results of the SG tube inspections in the documents referenced above. In addition, the licensee 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 NRC staff has the following observations:

- At the EOC 24, in each SG, the licensee performed a 100 percent full length bobbin/array combination probe examination of all in service tubes, except for the row 1-6 U-bends, which were inspected with an array probe only. The NRC staff notes that on September 16, 2021 (ADAMS Accession No. ML21259A093), the licensee submitted an application to revise the Catawba Unit 2 technical specifications based on Technical Specifications Task Force (TSTF) Traveler TSTF-577, Revision 1, "Revised Frequencies for Steam Generator Tube Inspections" (ADAMS Package Accession No. ML21099A086).
- In addition to tube wear at support structures and wear due to foreign objects, crack-like indications were detected below the H* depth in the tubesheet. Catawba Unit 2 has an alternate repair criteria amendment for indications below the H* depth (ADAMS Accession No. ML12054A692). No other crack-like indications were detected at the EOC 24.
- A total of 16 tubes were plugged at the EOC 24. Two were plugged due to foreign object wear (one each in SGs 2B (tube Row 12, Column 75 (R12C75)) and 2D (tube

Enclosure

R36C100)). Fourteen newly identified high stress tubes were plugged (six each in SGs 2B and 2D and two in SG 2C). In the letter dated December 14, 2021 (ADAMS Accession No. ML21348A113), the licensee stated that the anti-vibration bar wear in tube R36C100 in SG 2D was reclassified as foreign object wear at the EOC 24 based on the array probe data and confirmed that a total of 141 tubes have been plugged in SG 2B.

- The area of missing stainless-steel cladding in the SG 2D hot-leg channel head identified at the EOC 21 was inspected at the EOC 24 with no changes noted.
- No degradation was detected in the upper bundle visual inspection performed in SG 2A.

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 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.

Principal Contributor: L. Terry

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DATED JANUARY 18, 2022

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