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

November 22, 2022

Mr. Steven M. Snider
Site Vice President, Oconee Nuclear Station
Duke Energy Carolinas, LLC
Oconee Nuclear Station
7800 Rochester Highway
Seneca, SC 29672-0752

SUBJECT: OCONEE NUCLEAR STATION, UNIT 1 – SUMMARY OF CONFERENCE CALL REGARDING THE FALL 2022 STEAM GENERATOR TUBE INSPECTIONS (RFO 32) (EPID L-2022-NFO-0010)

Dear Mr. Snider:

On November 8, 2022, the U.S. Nuclear Regulatory Commission staff participated in a conference call with representatives of Duke Energy Carolinas, LLC, regarding the ongoing steam generator tube inspection activities at Oconee Nuclear Station, Unit 1.

A summary of the conference call is provided in the enclosure.

If you have any questions, please call me at 301-415-1009, or by email at Shawn.Williams@nrc.gov.

Sincerely,

/RA/

Shawn A. Williams, Senior Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-269

Enclosure:
Conference Call Summary

cc: Listserv

SUMMARY OF CONFERENCE CALL

OCONEE NUCLEAR STATION, UNIT 1

FALL 2022 STEAM GENERATOR TUBE INSPECTIONS (RFO 32)

DOCKET NO. 50-269

On November 8, 2022, the U.S. Nuclear Regulatory Commission (NRC) staff, including the Corrosion and Steam Generator Branch (NCSG) of the Division of New and Renewed Licenses, participated in a conference call with Duke Energy Carolinas, LLC (the licensee), regarding the ongoing steam generator (SG) tube inspection activities at Oconee Nuclear Station, Unit 1 (Oconee, Unit 1), during refueling outage (RFO) 32.

Oconee, Unit 1, has two replacement once-through SGs designed and fabricated by Babcock and Wilcox International. Each SG has 15,631 thermally treated Alloy 690 tubes with a nominal outside diameter of 0.625 inches and a nominal wall thickness of 0.038 inches. The tubes were hydraulically expanded for 13 inches from the tube end into the 22-inch thick tubesheets. Tube support is provided by 15 stainless steel horizontal tube support plates (TSPs) with trifoil broached openings. Some of the periphery tube support openings in the 14th TSP are drilled holes.

The NRC staff notes that the inspection information provided during the call is preliminary and subject to change upon final data analysis. The discussion points are below:

- At the time of the call eddy current acquisition and analysis, inspections were approximately 99 percent complete in SG A and approximately 95 percent complete in SG B.

- The eddy current inspection scope for each SG included:

    - A 100 percent full length bobbin probe examination of all in-service tubes.

    - Array probe inspection five tubes deep on the periphery up to the first TSP.

    - Array probe special interest inspections, for characterizing the deeper wear indications and drilled hole indications and for validating projections from the operational assessment.

- Other inspections included:

    - Foreign object search and retrieval (FOSAR) in both SGs

    - Visual inspection of the primary inlet and outlet bowls

Enclosure

- At the time of the call, the licensee had identified the following:

    - Wear from TSPs was the only new degradation since the previous inspection in 2020. The new TSP wear was at existing wear indications. There were no new foreign object (FO) wear indications or changes at existing FO wear indications.

    - There were 15,468 indications of TSP wear in 7,076 tubes in SG A, and 10,792 indications of TSP wear in 5,628 tubes in SG B.

    - The maximum measured wear depth of 49 percent through-wall (TW) was on a tube with a measured wear depth of 37 percent TW in RFO 31 in 2020.

    - There were 28 TSP wear indications in SG A and 14 TSP wear indications in SG B with measured depths of 40 percent TW or higher.

    - In SG A, FOSAR found 10 metallic gasket pieces and one piece of metallic wire. All were removed. In SG B, FOSAR found three metallic gasket pieces. Two were removed. Objects left in place were evaluated for their potential to cause tube wear.

- At the time of the call, all indications met the condition monitoring limits for demonstrating tube integrity is maintained. No *in-situ* pressure tests had been performed and none were planned. No tubes were being pulled.

- In response to a question from the NRC staff about the amount of deposit on the secondary side, the licensee provided the amount of iron transported to the SGs. [Iron transport to SGs is in the form of dissolved and particulate iron in the feedwater that can deposit in the SGs.] For Cycle 32, approximately 325 pounds of iron were transported to the SGs. Approximately 2,898 pounds of iron had been transported to the SGs since they were placed into operation.

- The number of tubes identified for plugging was 27 in SG A and 14 in SG B. All of these were being plugged due to TSP wear of 40 percent TW or greater.

The NRC staff did not identify any issues that required follow-up action at this time.

Steam Generator Inspection Call Attendees

NRC	**Duke Energy**	**Framatome**
Shawn Williams	Jordan Vaughan	Craig Kelly
Gregory Makar	Etienne Fonteneau	
Paul Klein	Dan Mayes	
Binoy Desai	Tim Thulien	
Nick Smalley	Marie Turner	
Jared Nadel		
Adam Ruh		

SUBJECT: OCONEE NUCLEAR STATION, UNIT 1 – SUMMARY OF CONFERENCE CALL REGARDING THE FALL 2022 STEAM GENERATOR TUBE INSPECTIONS (RFO 32) (EPID L-2022-NFO-0010) DATED NOVEMBER 22, 2022

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NAME	MMarkley	SWilliams	
DATE	11/22/2022	11/22/2022	

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