



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

June 12, 2018

Mr. J. Ed Burchfield, Jr.  
Vice President, Oconee Nuclear Station  
Duke Energy Carolinas, LLC  
7800 Rochester Highway  
Seneca, SC 29672-0752

**SUBJECT: OCONEE NUCLEAR STATION, UNIT 2 – REVIEW OF STEAM GENERATOR  
INSERVICE INSPECTION REPORT FOR UNIT 2 END OF CYCLE 28  
REFUELING OUTAGE (EPID L-2018-LRO-0012)**

Dear Mr. Burchfield:

By letter ONS-2018-020 dated February 28, 2018, Duke Energy Carolinas, LLC (the licensee) submitted its steam generator tube inspection report for Oconee Nuclear Station, Unit 2 (Oconee 2) in accordance with Technical Specification (TS) 5.6.8, "Steam Generator Tube Inspection Report." The report summarizes the steam generator tube inspections that the licensee performed during the Oconee 2 Cycle 28 refueling outage in the fall of 2017. The U.S. Nuclear Regulatory Commission (NRC) staff reviewed the submittal and concludes that the licensee provided the information required by TS 5.6.8. The enclosure documents the NRC staff's review of the submittal and completes the NRC staff's efforts for Enterprise Project Identifier (EPID) L-018-LRO-0012. Any inquiries can be directed to Ms. Audrey Klett at 301-415-0489 or via e-mail at [Audrey.Klett@nrc.gov](mailto:Audrey.Klett@nrc.gov).

Sincerely,

A handwritten signature in black ink, appearing to be "AK", with a long horizontal stroke extending to the right.

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

Docket No. 50-270

Enclosure:  
As stated

Cc w/encl: Listserv



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REVIEW BY THE OFFICE OF NUCLEAR REACTOR REGULATION

FALL 2017 STEAM GENERATOR TUBE INSERVICE INSPECTION REPORT

DUKE ENERGY CAROLINAS, LLC

OCONEE NUCLEAR STATION, UNIT 2

DOCKET NO. 50-270

By letter dated February 26, 2018 (Agencywide Documents Access and Management Systems Accession No. ML18067A109), Duke Energy Carolinas, LLC (the licensee) submitted information summarizing the results of the steam generator (SG) tube inspections performed at Oconee Nuclear Station, Unit 2 (Oconee 2), during refueling outage (RFO) 28 in the fall of 2017. Oconee 2 has two replacement once-through steam generators (OTSGs) designed and fabricated by Babcock and Wilcox International. These OTSGs were put into service in 2004. Each OTSG 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 tubesheet. The licensee provided the scope, extent, methods, and results of its SG tube inspections in its letter dated February 26, 2018. In addition, the licensee described corrective actions (i.e., tube plugging) taken in response to its inspection findings.

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

- Three tubes were plugged due to presumed foreign object (FO) wear indications, and another seven tubes were preventatively plugged because of their proximity to the presumed FO. During RFO 28, the presumed FO was visible with eddy current and the maximum depth recorded of the presumed FO wear indications was 14 percent through-wall with an axial length and circumferential extent of 0.23 inches and 53 degrees, respectively.
- The number of tube support plate (TSP) wear indications in SG 2A increased from 13,470, to 13,876, to 17,429 indications during RFOs 26, 27, and 28, respectively. The number of TSP wear indications in SG 2B increased from 9,714, to 12,145, to 12,648 indications during RFOs 26, 27, and 28, respectively.
- The number of wear indications at the fourteenth TSP increased from 11 to 21 in SG 2A and remained about the same in SG 2B between RFO 27 and RFO 28. The number of tube-to-tube wear indications has remained about the same in both SGs.

Enclosure

Based on its review of the information provided, the NRC staff concludes that the licensee provided the information required by Technical Specification 5.6.8, "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 because 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: Alan T. Huynh

Date: June 12, 2018

SUBJECT: OCONEE NUCLEAR STATION, UNIT 2 – REVIEW OF STEAM GENERATOR  
 INSERVICE INSPECTION REPORT FOR UNIT 2 END OF CYCLE 28  
 REFUELING OUTAGE (EPID L-2018-LRO-0012)  
 DATED JUNE 12, 2018

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**ADAMS Accession No.: ML18162A157**

**\*by memorandum**

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