



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001
August 18, 2009

Mr. J. R. Morris
Site Vice President
Catawba Nuclear Station
Duke Energy Carolinas, LLC
4800 Concord Road
York, SC 29745

SUBJECT: CATAWBA NUCLEAR STATION, UNIT 2 - REVIEW OF CYCLE 15 STEAM
GENERATOR TUBE INSERVICE INSPECTION REPORTS (TAC NO. MD8402)

Dear Mr. Morris:

By letter to the Nuclear Regulatory Commission (NRC) dated February 11, 2008, as supplemented by letters dated March 26, 2008, December 18, 2008, and May 28, 2009, Duke Energy Carolinas, LLC (the licensee), submitted the Cycle 15 steam generator (SG) tube inservice inspection reports for Catawba Nuclear Station, Unit 2 (Catawba 2), in accordance with Technical Specification (TS) Section 5.6.8, and as required by the American Society of Mechanical Engineers, *Boiler and Pressure Vessel Code*, Section XI, Paragraph IWA-6230, for the SG tube inspections performed during the end-of-cycle (EOC) 15 refueling outage (August 2007).

A summary of the NRC staff's evaluation of the EOC 15 refueling outage SG tube inspection results is enclosed. The NRC staff concludes that the licensee provided the information required by the Catawba 2 TSs and that no additional follow-up is required at this time.

If you have any questions, please call me at 301-415-1119.

Sincerely,

A handwritten signature in black ink that reads "Jon Thompson".

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

Docket No. 50-414

Enclosure:
As stated

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UNITED STATES
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OFFICE OF NUCLEAR REACTOR REGULATION

REVIEW OF CYCLE 15 STEAM GENERATOR TUBE INSPECTION REPORTS

CATAWBA NUCLEAR STATION, UNIT 2

DOCKET NO. 50-414

By letter to the Nuclear Regulatory Commission (NRC) dated February 11, 2008 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML080500179), as supplemented by letters dated March 26, 2008 (ADAMS Accession No. ML080930312), December 18, 2008 (ADAMS Accession No. ML083660086), and May 28, 2009 (ADAMS Accession No. ML091550027), Duke Energy Carolinas, LLC (the licensee), submitted the Cycle 15 steam generator (SG) tube inservice inspection reports for Catawba Nuclear Station, Unit 2 (Catawba 2), in accordance with Technical Specification (TS) Section 5.6.8, and as required by the American Society of Mechanical Engineers, *Boiler and Pressure Vessel Code*, Section XI, Paragraph IWA-6230, for the SG tube inspections performed during the end-of-cycle (EOC) 15 refueling outage (August 2007).

Catawba 2 has four Westinghouse Model D5 SGs, which are designated 2A through 2D. All four SGs were inspected during the EOC 15 refueling outage. Each SG has 4,570 thermally treated Alloy 600 tubes with an 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 Type 405 stainless steel support plates with quatrefoil-shaped holes. The U-bend region of the tubes installed in Rows 1 through 9 was thermally treated after bending in order to reduce stress.

The licensee provided the scope, extent, methods, and results of the Catawba 2 SG tube inspections in the documents referenced above. In addition, the licensee described corrective actions (i.e., tube plugging) taken in response to the inspection findings.

The NRC staff has the following notes/observations as a result of reviewing the information provided by the licensee.

Eight tubes in SG 2B were plugged and stabilized during EOC 15. These tubes contained outside diameter initiated axial indications at the top of the tubesheet. An array probe was used for detection of indications at the top of the tubesheet. No tubes were plugged in any of the other SGs during this outage.

Also during EOC 15, the licensee inspected the steam drums in the 2B and 2C SGs. All components were found to be in good to excellent condition.

Possible loose parts (PLP) indications were detected during eddy current inspections. There was no degradation detected in conjunction with any of the PLP indications. Loose parts were

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left in service at the top of the tubesheet and the pre-heater baffle plate region. The licensee performed an analysis to confirm that tube integrity would be maintained in these regions until the next scheduled inspection.

The licensee indicated that visual inspections to determine the extent of tube support plate hole blockage, during the EOC 15 outage, were inconclusive because the inspection could not see the bottom of the support plate broached holes. In their May 28, 2009, letter the licensee described more comprehensive inspections in this area that were performed during the EOC 16 outage in March of 2009. The EOC 16 inspections indicated that the broached openings at the 08-hot and 09-cold support plates were generally open and free of blockage. There was some evidence of deposits beginning to form at the bottoms of broached openings. In addition, a small number of openings were partially blocked by spilled flakes.

Based on a review of the information provided, the NRC staff concludes that the licensee provided the information required by their TSs. 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.

Principal Contributor: M. Yoder

Date: August 18, 2009

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Site Vice President
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Sincerely,

/RA/

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

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