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

March 26, 2015

Mr. Richard M. Glover, Vice President
H. B. Robinson Steam Electric Plant
Duke Energy Progress, Inc.
3581 West Entrance Road
Hartsville, SC 29550

SUBJECT: H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2 – REVIEW OF THE FALL 2013 STEAM GENERATOR TUBE INSERVICE INSPECTION DURING REFUELING OUTAGE 28 (TAC NO. MF4120)

Dear Mr. Glover:

By letter dated January 30, 2014 (Agencywide Documents Access and Management Systems (ADAMS) Accession No. ML14037A230), supplemented by letters dated April 29, 2014 (ADAMS Accession No. ML14127A066) and November 13, 2014 (ADAMS Accession No. ML14364A080), Duke Energy Progress, Inc., the licensee, submitted information summarizing the results of the fall 2013 refueling outage (RFO) 28 steam generator (SG) tube inspection at H. B. Robinson Steam Electric Plant, Unit No. 2.

The U.S. Nuclear Regulatory Commission (NRC) staff participated in a conference call with the licensee on October 22, 2013, regarding the RFO 28 SG tube inspection activities and provided a summary of this conference call in a letter dated December 13, 2013 (ADAMS Accession No. ML13333B555). The NRC staff requested additional information in a letter dated October 22, 2014 (ADAMS Accession No. ML14289A473), and held conference calls with the licensee on November 4, 2014, and January 23, 2015, to discuss the results of the RFO 28 information provided by the licensee. Enclosed is a summary of the NRC staff's review of the information provided.

If you have any questions, please contact me at 301-415-2760 or Martha.Barillas@nrc.gov.

Sincerely,

/RA/

Martha Barillas, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-261

Enclosure:
Review of Inspection Summary Report

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REVIEW OF THE 2013 STEAM GENERATOR TUBE

INSERVICE INSPECTIONS

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

DOCKET NO. 50-261

TAC NO. MF4120

By letter dated January 30, 2014 (Agencywide Documents Access and Management Systems (ADAMS) Accession No. ML14037A230), supplemented by letters dated April 29, 2014 (ADAMS Accession No. ML14127A066) and November 13, 2014 (ADAMS Accession No. ML14364A080), Duke Energy Progress, Inc., the licensee, submitted information summarizing the results of the fall 2013 refueling outage (RFO) 28 steam generator (SG) tube inspection at H. B. Robinson Steam Electric Plant, Unit No. 2 (RNP-2). The U.S. Nuclear Regulatory Commission (NRC) staff participated in a conference call with the licensee on October 22, 2013, regarding the RFO 28 SG tube inspection activities and provided a summary of this conference call in a letter dated December 13, 2013 (ADAMS Accession No. ML13333B555). The NRC staff requested additional information in a letter dated October 22, 2014 (ADAMS Accession No. ML14289A473), and held conference calls with the licensee on November 4, 2014, and January 23, 2015, to discuss the results of the RFO 28 SG tube inspection information provided by the licensee. Below is a summary of the NRC staff's review of all information provided.

RNP-2 has three Westinghouse model 44F SGs, each containing 3,214 thermally-treated Alloy 600 tubes. The tubes have a nominal outside diameter of 0.875 inches and a nominal wall thickness of 0.050 inches. The tubes are supported by stainless steel tube support plates with quatrefoil-shaped holes and V-shaped Alloy 600 anti-vibration bars (AVBs).

The licensee provided the scope, extent, methods, and results of its 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.

After reviewing the information provided by the licensee, the NRC staff has the following comments and observations:

- During RFO 28, two indications of circumferential primary water stress corrosion cracking were found in hot-leg tube ends. The H* (H-star) alternate repair criteria allows these tubes to remain in service, since these indications are more than 18.11 inches below the top of the tubesheet.

- The licensee completed its insertion depth study and confirmed via eddy current that all tubes that should be supported by a particular AVB had a support structure present.

- RNP-2 entered a forced outage on March 7, 2014, because of primary-to-secondary leakage. A separate review of the SG tube inspection report for that outage will be performed.

Enclosure

- The licensee is using an internal process that tracks indications based on whether there was a signal change from prior inspections and also assesses whether the cause of the degradation mechanism was still present (e.g., removal of a loose part that caused wear, no longer using certain maintenance equipment). In a conference call on January 23, 2015, the NRC staff clarified that there does not appear to be any issue with the licensee's internal procedure for classifying or characterizing indications. However, Technical Specification 5.6.8.d requires reporting the location, orientation (if linear), and measured sizes (if available), of all service-induced indications that are detected during each inspection. The NRC staff clarified that service-induced indications can be produced by either plant operation or maintenance. The NRC staff further clarified that whether the service-induced indications are actively growing or not has no bearing on whether these indications need to be reported.

Based on a review of the information provided, the NRC staff concludes that the licensee provided the information required by its technical specifications. In addition, the 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. Further, the inspection results appear to be consistent with industry operating experience at similarly designed and operated units.

If you have any questions, please contact me at 301-415-2760 or Martha.Barillas@nrc.gov.

Sincerely,

/RA/

Martha Barillas, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
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