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

December 13, 2013

Mr. William G. Gideon, 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 2 - SUMMARY OF CONFERENCE CALL REGARDING THE FALL 2013 STEAM GENERATOR TUBE INSERVICE INSPECTIONS (TAC NO. MF2941)

Dear Mr. Gideon:

On October 22, 2013, the Nuclear Regulatory Commission staff participated in a conference call with Duke Energy Progress, Inc. representatives regarding the fall 2013 refueling outage steam generator tube inspection activities at H. B. Robinson Steam Electric Plant, Unit 2. Enclosed is a summary of the conference call.

If you have any questions regarding this summary, please contact me at 301-415-1564.

Sincerely,

Siva P. Lingam, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-261

Enclosure:
Summary of Conference Call

cc w/enclosure: Distribution via ListServ

SUMMARY OF CONFERENCE CALL WITH

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT 2

REGARDING THE FALL 2013 STEAM GENERATOR

TUBE INSPECTION RESULTS

DUKE ENERGY PROGRESS, INC.

DOCKET NO. 50-261

On October 22, 2013, the U.S. Nuclear Regulatory Commission (NRC) staff participated in a conference call with Duke Energy Progress, Inc. (the licensee) representatives regarding the fall 2013 refueling outage steam generator (SG) tube inservice inspection activities at H. B. Robinson Steam Electric Plant, Unit 2 (Robinson 2).

Robinson 2 has three Westinghouse model 44F SGs. Each SG contains 3214 thermally-treated Alloy 600 tubes. Each tube has an outside diameter of 0.875 inch and a wall thickness of 0.050 inch. The tubes are supported by stainless steel tube support plates with quatrefoil-shaped holes and V-shaped Alloy 600 anti-vibration bars.

At the time of the call the licensee indicated that it had completed the SG tube inspections for the Unit 2 SGs. Information provided by the licensee is summarized below:

1. There was no detectable primary-to-secondary leakage during the most recent operating cycle.

2. No secondary side pressure tests were performed.

3. No exceptions were taken to Nuclear Energy Institute initiative 97-06 or the Electric Power Research Institute SG program guidelines.

4. During the fall 2013 refueling outage, chemical cleaning, sludge lancing, and eddy current inspections were performed. The eddy current inspections were performed following the chemical cleaning and the sludge lancing.

   A bobbin coil was used to inspect the full length (with the exception of the U-bend region of the row 1 and 2 tubes) of 50 percent of the tubes in each SG. The U-bend region of row 1 and 2 tubes was inspected with an array or +Point coil as discussed below.

Enclosure

An array coil was used to inspect 100 percent of the tubes from the hot-leg tube end to the first tube support plate on the hot-leg side; all peripheral and open tube-lane tubes (2 tubes into the bundle) from the cold-leg tube end to the first tube support plate on the cold-leg side; the U-bend region of 50 percent of the row 1 and 2 tubes, the U-bend region of 20 percent of the row 9 tubes (i.e., the first row where the U-bend region was not stress relieved); all dents and dings with bobbin voltage amplitudes greater than 4 volts; and various other special interest locations.

In addition to the bobbin and array coil inspections, a rotating pancake coil probe was used to inspect a small number of indications for comparison with the array probe results.

The noise in the eddy current data was monitored this outage. No significant issues associated with noise were identified.

A visual inspection was performed of all plugs. All plugs were in their proper location and there was no evidence of leakage.

A visual inspection of the SG channel head bowl cladding was performed. No adverse conditions were identified.

The tubes were evaluated for slippage. No tube slippage was identified.

Eddy current data was taken to verify anti-vibration bar insertion depth. This data was to be further evaluated following the outage.

5. Two tubes were identified with apparent indications of circumferential primary water stress corrosion cracking at the hot-leg tube end: one tube in SG A and one in SG C. This region of the tube had not historically been examined. No other indications of stress corrosion cracking were identified at this location (tube end) or any other location.

Tube wear was identified at the anti-vibration bars and just below the tube support plate elevations. The indications of wear located below the tube support plate elevations were attributed to foreign objects/loose parts. Most of the wear indications located below the tube support plate elevations were present in prior inspections (but some were new indications). There was no evidence (by eddy current) of a possible loose part at these locations.

The maximum depth of any of the "flat" wear scars was 28 percent through-wall, which is less than the 54.8 percent condition monitoring limit determined by the licensee.

The maximum depth of any of the foreign object/loose part wear was 34 percent through-wall (with a length of 0.59-inch) which is less than the 57 percent condition monitoring limit determined by the licensee for a 0.75-inch long wear scar.

All tubes were determined to have adequate integrity.

6. Four tubes were plugged during the outage. These tubes were planned to be plugged prior to the outage since there were some issues with respect to how they were expanded into the tubesheet (and, as a result, may not have met the assumptions used in developing

the H* repair criteria contained within the technical specifications). These tubes were inspected prior to tube plugging to confirm their integrity.

7. No in situ pressure tests were performed during the outage and no tubes were pulled (removed) from the SG.

8. A visual inspection was performed on the secondary face of the tubesheet to identify loose parts and to ascertain the effectiveness of sludge lancing. The visual inspection included the high velocity region, the peripheral tubes, open tube lane, and approximately 5-tubes into the tube bundle (from the periphery). The inspections revealed six metallic objects (five flexitallic gaskets and one small wire). All of these objects were removed.

9. The SGs were chemically cleaned during the outage using the AREVA deposit minimization treatment (a "soft" chemical cleaning). The chemical cleaning resulted in approximately 3600 to 3800 pounds of material being removed from the SG. Most of the material removed was iron, but there was also some copper removed.

   Sludge lancing was performed at the top of the tubesheet and at the flow distribution baffle following the chemical cleaning. The sludge lancing removed an additional 500 pounds of material.

   Following chemical cleaning, a visual inspection of the upper tube bundle region in SG A was performed. The inspections indicated the SG was very clean. Some tubes were very clean and some still had some deposits. No blockage of the tube support plate openings was identified. There was a noticeable improvement in the condition (deposit loading) of this SG since Refueling Outage 26.

   An in-bundle visual inspection near the top of the tubesheet was performed using an AREVA system. This was the first time the AREVA system was used. The results of the inspections indicated good results.

   A visual inspection of the SG C steam drum was performed. No evidence of erosion or corrosion was identified.

10. There were no unusual or unexpected SG inspection results during the fall 2013 Refueling Outage.

The NRC staff did not identify any issues that required followup action at this time.

December 13, 2013

Mr. William G. Gideon, 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 2 - SUMMARY OF CONFERENCE CALL REGARDING THE FALL 2013 STEAM GENERATOR TUBE INSERVICE INSPECTIONS (TAC NO. MF2941)

Dear Mr. Gideon:

On October 22, 2013, the Nuclear Regulatory Commission staff participated in a conference call with Duke Energy Progress, Inc. representatives regarding the fall 2013 refueling outage steam generator tube inspection activities at H. B. Robinson Steam Electric Plant, Unit 2. Enclosed is a summary of the conference call.

If you have any questions regarding this summary, please contact me at 301-415-1564.

Sincerely,

/RA/ Andrew Hon for

Siva P. Lingam, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-261

Enclosure:
Summary of Conference Call

cc w/enclosure: Distribution via ListServ

DISTRIBUTION:
PUBLIC
RidsNrrPMRobinson
RidsRgn2MailCenter
K. Karwoski, NRR
LPL2-2 R/F
RidsNrrLABClayton (Hard Copy)
RidsNrrDeEsgb
A. Johnson, NRR
RidsNrrDorlLpl2-2
RidsAcrsAcnw_MailCTR
A. Obodoako, NRR

ADAMS Accession No.: ML13333B555 *by memo

OFFICE	DORL/LPL2-2/PM	DORL/LPL2-2/LA	DE/ESGB/BC*	DORL/LPL2-2/BC	DORL/LPL2-2/PM
NAME	SLingam (FSaba for)	BClayton	GKulesa	JQuichocho	SLingam (AHon for)
DATE	12/03/13	12/02/13	11/22/13	12/11/13	12/13/13

OFFICIAL AGENCY RECORD