



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

October 5, 2009

Mr. Charles G. Pardee
President and Chief Nuclear Officer
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: BYRON STATION, UNIT NO. 2 - REVIEW OF FALL 2008 STEAM GENERATOR
TUBE INSERVICE INSPECTION REPORT (TAC NO. ME0802)

Dear Mr. Pardee:

By letter dated January 20, 2009 (Agencywide Documents Access and Management System Accession No. ML090330274), Exelon Generation Company, LLC (the licensee) submitted a report related to the steam generator tube inservice inspections for the fall 2008, refueling outage at the Byron Station (Byron), Unit No. 2, in accordance with the plant's technical specifications (TSs).

The Nuclear Regulatory Commission (NRC) staff has completed its review of the report and concludes that you have provided the information required by the Byron TSs, and that no additional follow-up is required at this time. A copy of the NRC staff evaluation is enclosed.

Sincerely,

A handwritten signature in black ink, appearing to read "Marshall J. David".

Marshall J. David, Senior Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. STN 50-455

Enclosure:
Evaluation of Steam Generator Tube Inservice Inspection Report

cc w/encl: Distribution via ListServ

OFFICE OF NUCLEAR REACTOR REGULATION
EVALUATION OF STEAM GENERATOR TUBE INSERVICE INSPECTION REPORT
FOR FALL 2008 REFUELING OUTAGE
BYRON STATION, UNIT NO. 2
DOCKET NO. 50-455

By letter dated January 20, 2009 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML090330274), Exelon Generation Company, LLC (the licensee) submitted a report summarizing the results of the steam generator (SG) tube inservice inspection performed at Byron Station (Byron), Unit No. 2, during the fall 2008, refueling outage (RFO) 14 (B2R14). Additional details of these inspections are documented in a conference call summary letter dated November 20, 2008 (ADAMS Accession No. ML083180783). A conference call was held with the licensee on May 14, 2009, to discuss some of the inspection results, and the information from this call is included in the summary, below.

Byron 2 has four Westinghouse Model D5 SGs. There are 4570 thermally-treated Alloy 600 tubes in each SG, with a nominal 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 and are welded to the tubesheet at the bottom of each expansion. The tubes are supported by a number of Type 405 stainless steel supports with quatrefoil shaped holes.

The licensee provided the scope, extent, methods, and results of their SG tube inspections in the documents referenced above. In addition, the licensee described corrective actions, such as tube plugging, taken in response to the inspection findings. The tubes in all four SGs were inspected this outage.

After review of the information provided by the licensee, the Nuclear Regulatory Commission (NRC) staff has the following comments/observations:

1. One tube was preventively plugged in preparation for a permanent alternate repair criteria amendment, because the tube bore was larger than the assumptions contained in the analysis for the proposed amendment.
2. A total of 65 indications of axial tube-end Primary Water Stress-Corrosion Cracking (PWSCC) were found in 64 tubes in the four SGs. No circumferential PWSCC indications were found.
3. At the time of the 2008 inspections, the SGs had been in service for 18.6 effective full power years and had operated 88.63 effective full power months (EFPM) in the second sequential inservice inspection period. Therefore, RFO B2R14 was the end-point outage of the 90 EFPM inservice inspection period.

ENCLOSURE

4. An engineering analysis performed in RFO B2R13 determined that erosion of the primary moisture separator components was not projected to penetrate through-wall over the next two operating cycles; consequently, there was no inspection performed in RFO B2R14. Monitoring of the condition is planned during RFO B2R15 in order to monitor the degradation growth rate and take corrective actions if they become necessary.
5. Byron 2 had identified 40 tubes as potentially having higher residual stress, prior to the start of RFO B2R14. These tubes were inspected full length with a bobbin coil and for the entire hot-leg tubesheet region with a +PT™ probe. No stress corrosion cracking indications were identified in these tubes.
6. During the May 14, 2009, conference call, the licensee provided the foreign object search and retrieval results of SGs A and D, and the visual inspection results of the waterbox region in SG B. Two foreign objects were found on the hot-leg side of the tube bundle in SG A. A small wire, 0.015 inches in diameter by 0.75 inches long, was found (and retrieved) by the tube located in row 43 column 79 (R43C79), and a piece of slag initially found during RFO B2R11 was confirmed to still be wedged at R28C105. No wear scars were found on tubes near either foreign object. No foreign objects were found in SG D. The visual inspection of the SG B waterbox region included the target plate, distribution ribs, and the cap plate. No erosion was noted on the distribution ribs or the target plate, but a trace amount of erosion was noted on the cap plate flow holes.

Based on a review of the information provided by the licensee, the NRC staff concludes that the licensee provided the information required by their technical specifications. The SG tube inspections at Byron 2 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. No additional follow-up is required at this time.

Principal Contributor: A. Johnson

Date: October 5, 2009

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Sincerely,

/RA/

Marshall J. David, Senior Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. STN 50-455

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