October 17, 2007

Mr. Christopher M. Crane
President and Chief Nuclear Officer
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: BRAIDWOOD STATION, UNIT 2 - REVIEW OF TWELFTH REFUELING OUTAGE STEAM GENERATOR TUBE INSERVICE INSPECTION REPORT (TAC NO. MD4199)

Dear Mr. Crane:

By letter to the Nuclear Regulatory Commission (NRC) dated November 29, 2006 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML063130425), as supplemented by letters dated January 29, 2007 (ADAMS Accession No. ML070290637), and August 17, 2007 (ADAMS Accession No. ML072290564), Exelon Generation Company, LLC (the licensee), submitted information summarizing the results of the 2006 steam generator (SG) tube inspection activities at Braidwood Station, Unit 2, in accordance with Technical Specification (TS) Section 5.6.9, and as required by the American Society of Mechanical Engineers, Boiler and Pressure Vessel Code, Section XI. These inspections were performed during the twelfth refueling outage.

The NRC staff's review of the twelfth refueling outage SG tube inspection results is enclosed. The NRC staff concludes that the licensee provided the information required by the TSs, and that no additional follow-up is required at this time.

Sincerely,

/RA/

Meghan M. Thorpe-Kavanaugh, Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. STN 50-457

Enclosure:
Twelfth Refueling Outage SG Tube Inspection Results

cc w/encl: See next page

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SUMMARY OF THE NRC STAFF'S REVIEW

REFUELING OUTAGE 12 STEAM GENERATOR TUBE

INSERVICE INSPECTION REPORTS

BRAIDWOOD STATION, UNIT 2

DOCKET NO. STN 50-457

By letter to the Nuclear Regulatory Commission (NRC) dated November 29, 2006 (Agency wide Documents Access and Management System (ADAMS) Accession No. ML063130425), January 29, 2007, ADAMS Accession No. ML070290637), and August 17, 2007, ADAMS Accession No. ML072290564), Exelon Generation Company, LLC (the licensee), submitted information summarizing the results of the 2006 steam generator (SG) tube inspection activities at Braidwood Station, Unit 2. These inspections were performed during the twelfth refueling outage.

Braidwood Unit 2 has four Westinghouse Model D5 SGs, each containing 4,570 thermally treated Alloy 600 tubes. The tubes have an outside diameter of 0.750 inch and a nominal wall thickness of 0.043 inch. The tubes were hydraulically expanded at both ends for the full length of the tubesheet and are supported by a number of stainless steel tube supports with quatrefoil-shaped holes. The U-bend region of the tubes in rows 1 through 9 was thermally stress relieved after bending.

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

As a result of the review of the reports, the NRC staff has the following comments/observations:

No tubes were identified that were not expanded for the full length of the tubesheet.

One tube was deplugged in 1991 (during the second refueling outage). A rotating probe inspection during the twelfth refueling outage (2006) of the region of the tube, where the plug had previously been installed, did not reveal any evidence of primary water stress corrosion cracking.

Several loose parts were identified during the outage and were not retrievable. The licensee performed an analysis that determined operation until the next scheduled inspection (refueling outage thirteen), was acceptable with the loose parts remaining in the SGs.

Two tubes had indications slightly below a tube support plate. The indications were attributed to wear from a loose part. No loose part was evident in the eddy current data. A visual inspection of this region could not be performed since the tubes are in the interior of the tube bundle. The tubes were plugged and stabilized.

Erosion of the moisture separator tangential nozzles, downcomer barrels, and swirl vanes were identified in SG D during the eleventh refueling outage inspections in 2005. Follow-up visual inspections and ultrasonic thickness measurements were taken of the eroded areas in SG D during the twelfth refueling outage in 2006. The licensee's analysis indicated that the erosion in the affected areas was not projected to penetrate through-wall over the next operating cycle. The licensee plans to monitor the condition in order to develop degradation growth rates and take corrective actions if they become necessary. Inspections of these regions in the other steam generators are scheduled for 2008.

Based on a review of the information provided, the NRC staff concludes that the licensee provided the information required by their technical specifications. In addition, the NRC staff concludes that there are no technical issues that warrant follow-up action at this time, since the inspection appears 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. Abid, NRR

Date:

Braidwood Station, Units 1 and 2

cc:

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