

January 27, 2006

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

SUBJECT: BRAIDWOOD STATION, UNIT 1 - EVALUATION OF STEAM GENERATOR
INSERVICE INSPECTION SUMMARY REPORT (TAC NO. MC7014)

Dear Mr. Crane:

By letters to the Nuclear Regulatory Commission (NRC) dated October 29, 2004 and January 20, 2005, Exelon Generation Company, LLC (the licensee), submitted information pertaining to the steam generator tube inspection summary reports for the fall 2004 outage at the Braidwood Station, Unit 1 (Braidwood), in accordance with the plant's technical specifications (TSs).

The NRC staff has completed its review of these reports and concludes that the licensee provided the information required by the Braidwood TSs and that no additional follow-up is required at this time.

Sincerely,

/RA/

Mahesh L. Chawla, Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. STN 50-456

Enclosure:
Evaluation of SG Inspection Reports

cc w/encl: See next page

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OFFICE OF NUCLEAR REACTOR REGULATION
EVALUATION OF STEAM GENERATOR INSPECTION REPORTS
FROM 2004 REFUELING OUTAGE
BRAIDWOOD STATION, UNIT 1
DOCKET NO. STN 50-456

INTRODUCTION

By letters to the Nuclear Regulatory Commission (NRC) dated October 29, 2004 (Agencywide Documents Access and Management System Accession No. ML043090549) and January 20, 2005 (ADAMS Accession No. ML050280208), Exelon Generation Company, LLC (the licensee), submitted information pertaining to the steam generator (SG) tube inspection summary reports for the fall 2004 outage at the Braidwood Station, Unit 1 (Braidwood) in accordance with the plant's technical specifications. In addition, the NRC staff summarized some of the inspection results in a letter dated December 21, 2004 (ADAMS Accession No. ML043240231).

BACKGROUND

The four SGs at Braidwood were replaced in 1998 with the SGs fabricated by Babcock and Wilcox International. Each SG contains 6633 thermally treated Alloy 690 tubes. Each tube has a nominal outside diameter of 0.6875-inch and a nominal wall thickness of 0.040-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 (lattice grid). The tubes installed in rows 1 through 21 were thermally stress relieved after bending.

RESULTS OF FALL 2004 INSPECTION

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 (i.e., tube plugging) taken in response to the inspection findings.

The licensee included information regarding the examination and evaluation procedures used during the SG eddy current inspection which included two independent analyses of the eddy current data, using automated data screening analysis systems.

As a result of the SG tube inspections, the licensee identified five tubes with indications of secondary side foreign object wear at the lattice grid elevations in SGs B, C and D. All of these tubes were plugged. In a conference call with the licensee, it was indicated that the foreign objects causing the wear could be spiral wound gasket material.

Enclosure

During this inspection, the licensee continued to monitor the potential for tubes to be in close proximity as part of the 100-percent full length bobbin coil inspection in SG B. The licensee did not identify any tube degradation associated with the tubes being in close proximity. The licensee stated that this condition will be monitored in all four SGs during the next refueling outage.

In its report dated July 29, 2003 (ADAMS Accession No. ML032190155), the licensee indicated that the tube in row 70 column 41 in SG D had a 6-percent through-wall indication which was attributed to wear at the lattice grid. In its report dated January 20, 2005 (ADAMS Accession No. ML050280208), the licensee indicated that the indication was 25-percent through-wall. In an NRC summary dated December 21, 2004, the NRC staff indicated that the indication in R70C41 (actually, the NRC staff incorrectly identified the tube as R70C2 in the summary) measured 25-percent through-wall and was attributed to wear from a foreign object and that there was no change in the signal between 2003 and 2004 SG tube inspections. In a conference call on August 4, 2005, the licensee clarified that originally (in 2003) the indications was classified as lattice grid wear, but based on the overall 2004 inspection results, they reviewed the 2003 indication at this location and concluded that this indication was a result of wear from a foreign object. The licensee also clarified that there was no growth in the indication rather the apparent change in depth (from 6 percent to 25 percent) was a result of using a different sizing method (i.e., instead of sizing the indication with a technique for lattice grid wear, the indication was sized with a foreign object wear sizing technique). The wear scar was at the bottom edge of the tube support slightly adjacent to the tube-to-lattice grid intersection.

CONCLUSIONS AND FUTURE INSPECTION PLANS

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

Principle Contributor: Y. Diaz

Date: January 26, 2006

Braidwood Station Units 1 and 2

cc:

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