



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

July 18, 2018

Mr. Bryan C. Hanson
Exelon Generation Company, LLC
President and Chief Nuclear Officer (CNO)
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: BYRON NUCLEAR POWER STATION, UNIT 2 - REVIEW OF FALL 2017
STEAM GENERATOR TUBE INSERVICE INSPECTION REPORT
(EPID NO. L-2018-LRO-0017)

Dear Mr. Hanson:

By letter dated April 5, 2018 (Agencywide Documents Access and Management Systems (ADAMS) Accession No. ML18095A116), Exelon Generation Company, LLC (the licensee) submitted information summarizing the results of the fall 2017 steam generator tube inspections performed at Byron Nuclear Power Station, Unit 2, during refueling outage 20.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the document referenced above and concludes that the licensee provided the information required by their technical specifications and that no additional follow-up is required at this time. The NRC staff's review of the reports is enclosed.

Sincerely,

A handwritten signature in black ink that reads "B. Wiebe" with a horizontal line underneath, followed by the word "For" written below the signature.

Joel S. Wiebe, Senior Project Manager
Plant Licensing Branch III
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. STN 50-455

Enclosure:
Review of the Fall 2017 Steam Generator
Tube Inservice Inspections

cc: Listserv

REVIEW OF THE FALL 2017

STEAM GENERATOR TUBE INSERVICE INSPECTIONS

BYRON NUCLEAR POWER STATION UNIT 2

DOCKET NO. 50-455

By letter dated April 5, 2018 (Agencywide Documents Access and Management Systems (ADAMS) Accession No. ML18095A116), Exelon Generation Company, LLC (the licensee) submitted information summarizing the results of the fall 2017 steam generator (SG) tube inspections performed at Byron Nuclear Power Station (Byron), Unit 2, during refueling outage (RFO) 20.

Byron, Unit 2, has four Westinghouse Model D5 recirculating SGs with 4570 thermally treated Alloy 600 tubes. Each tube has a nominal outside diameter of 0.750 inches and a nominal thickness of 0.043 inches. The tubes are hydraulically expanded into the full depth of the tubesheet and supported by stainless steel quatrefoil-shaped tube support plates and chrome plated Alloy 600 anti-vibration bars. The supports within the preheater region are 0.75 inches thick stainless steel drilled-hole baffle plates.

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

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

- During RFO 20, the licensee found a backing bar in the preheater region of SG 2C. The backing bar had not caused any detectable tube wear and was removed from SG 2C during foreign object search and retrieval (FOSAR) activities. The licensee determined the source of the loose part to be one of the two cutouts made in the central location of the waterbox cap plate region. These cutouts were made in the waterbox cap plate to access the inside of the waterbox. The cut-out plates were reinstalled in the cap plate by full-penetration groove welds on three sides of each cut-out plate. Three backing bars (each approximately 10.5, 4, and 2.5 inches long by 1 inch wide by ¼ inches thick) were used to 'frame' the three sides of each cutout plate during welding. These backing bars were intended to be fused to the full-penetration groove welds and remain permanently in place in SG 2C. The licensee concluded that the remaining backing bars posed no concern to tube integrity until the next inspection. To account for the postulated event that the backing bars or cut-out plates did become loose parts, the licensee plugged and stabilized 91 tubes in SG 2C to prevent the potential loose parts from contacting and damaging active tubes.
- In its April 5, 2018, letter, the licensee stated that an extent of condition assessment was performed for the remaining SG preheaters. In 2004 (RFO 11), a similar condition existed in SG 2A. Two carbon steel backing bars measuring 10.5 inches long were found in the preheater region. Both backing bars were removed from SG 2A. The licensee plugged and stabilized 91 tubes (all peripheral tubes in rows 40 and higher and

- several tubes in the T-slot region of SG 2A). The licensee later performed a repair to the waterbox cap plate in SG 2A by attaching a clamping device made from stainless steel plates above and below the original cap plate. The SG 2D preheater had no backing bars and no degradation.
- In the 2004 report, the licensee stated that fabrication records were reviewed to conclude that the waterbox cap plates in SGs 2B and 2C had not been modified. While it can be inferred that SG 2C's waterbox cap plate has since been modified, NRC regional staff confirmed that the SG 2B waterbox cap plate has not been modified. The licensee performed a full FOSAR of the tube support plate 02C baffle plate in SGs 2B and 2C.

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

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 STEAM GENERATOR TUBE INSERVICE INSPECTION REPORT
 (EPID NO. L-2018-LRO-0017) DATED JULY 18, 2018

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