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

February 3, 2017

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

SUBJECT: THREE MILE ISLAND NUCLEAR STATION, UNIT 1 – REVIEW OF THE FALL 2015 STEAM GENERATOR TUBE INSPECTIONS (CAC NO. MF7739)

Dear Mr. Hanson:

By letter dated May 21, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16144A791), as supplemented by letter dated December 22, 2016 (ADAMS Accession No. ML16362A213), Exelon Generation Company, LLC (Exelon) submitted information summarizing the results of the Fall 2015 steam generator tube inspections at the Three Mile Island Nuclear Station, Unit 1 (TMI). These inspections were performed during the 21st refueling outage.

The U.S. Nuclear Regulatory Commission (NRC) staff has completed its review of the information and determined that Exelon provided the information required by its technical specifications. In addition, the NRC staff did not identify any technical issues that warrant followup action at this time. Enclosed is the NRC staff's review of the TMI steam generator tube inspection report.

If you have questions, please contact me at 301-415-2048 or by e-mail to Justin.Poole@nrc.gov.

Sincerely,

Justin C. Poole, Project Manager
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-289

Enclosure:
Review of Fall 2015 Steam Generator
Tube Inspections

cc w/enclosure: Distribution via Listserv

REVIEW OF THE FALL 2015 STEAM GENERATOR TUBE INSPECTIONS

EXELON GENERATION COMPANY, LLC

THREE MILE ISLAND NUCLEAR STATION, UNIT 1

DOCKET NO. 50-289

By letter dated May 21, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16144A791), as supplemented by letter dated December 22, 2016 (ADAMS Accession No. ML16362A213), Exelon Generation Company, LLC (Exelon, the licensee) submitted information summarizing the results of the Fall 2015 steam generator (SG) tube inspections performed at the Three Mile Island Nuclear Station, Unit 1 (TMI) during refueling outage (RFO) 21. By letter dated December 30, 2015 (ADAMS Accession No. ML15350A196), the U.S. Nuclear Regulatory Commission (NRC) staff summarized a conference call held with the licensee regarding the Fall 2015 SG tube inspection report. The licensee also provided slides for the conference call dated November 9, 2015 (ADAMS Accession No. ML15327A081).

The two enhanced once-through SGs at TMI were manufactured by AREVA. Each SG has 15,597 tubes made out of thermally treated Alloy 690. The tubes have a nominal outer diameter of 0.625 inches and a nominal wall thickness of 0.037 inches. The SGs contain 15 stainless steel tube support plates (TSPs) that primarily have broached tri-foil holes.

The licensee provided the scope, extent, methods, and results of its 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.

Based on NRC staff's review of the information submitted by Exelon, the staff has the following observations and comments:

- The TSP wear indications are located primarily at or above the seventh TSP, with the highest number of indications occurring at the eighth TSP. The deepest indications were primarily located between TSPs 10 and 14. The radial location of the TSP wear is more towards the periphery at the higher TSP locations.

- During the Fall 2015 inspections, one TSP wear indication in an SG B tube at row 2, column 4, that was identified during RFO 20 in 2013 (ADAMS Accession No. ML14143A268) has grown from approximately 28 percent to approximately 73 percent through-wall (TW) by RFO 21. During the Fall 2013 inspections, one TSP wear indication was discovered to have grown from undetectable in RFO 19 to approximately 63 percent TW by RFO 20. Both of these tubes have been plugged.

- The licensee created a structural profile for the 73 percent TW flaw using the method described in the Electric Power Research Institute Flaw Handbook. The licensee concluded that the flaw was sharply tapered and, as a result, determined

a structural equivalent length of 0.45 inches and a structural equivalent depth of 64.4 percent TW. The licensee determined that the structural equivalent size and depth of the flaw falls below the condition monitoring limit curve.

Based on a review of the information provided, the NRC staff concludes that the licensee provided the information required by its technical specifications. In addition, the NRC staff concludes that there are no technical issues that warrant followup 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.

SUBJECT: THREE MILE ISLAND NUCLEAR STATION, UNIT 1 – REVIEW OF THE FALL 2015 STEAM GENERATOR TUBE INSPECTIONS (CAC NO. MF7739) DATED FEBRUARY 3, 2017

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