

November 1, 2012-11-02

MEMORANDUM TO: Meena Khanna, Chief
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

FROM: Peter Bamford, Project Manager */ra/*
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

SUBJECT: THREE MILE ISLAND, UNIT NO. 1 - ELECTRONIC TRANSMISSION,
DRAFT REQUEST FOR ADDITIONAL INFORMATION REGARDING
2011 STEAM GENERATOR TUBE INSPECTION REPORT (TAC NO.
ME8735)

The attached draft request for additional information (RAI) was transmitted by electronic transmission on November 1, 2012, to Ms. Stephanie Hanson, at Exelon Generation Company, LLC (Exelon, the licensee). This draft RAI was transmitted to facilitate the technical review being conducted by the Nuclear Regulatory Commission (NRC) staff and to support a conference call (if needed) with Exelon in order to clarify the licensee's 2011 steam generator tube inspection report. The draft RAI is related to Exelon's submittal, dated May 15, 2012, regarding the results of the 2011 steam generator tube inspections at Three Mile Island, Unit 1. The draft questions were sent to ensure that they were understandable, the regulatory basis was clear, and to determine if the information was previously docketed. Additionally, review of the draft RAI would allow Exelon to evaluate and agree upon a schedule to respond to the RAI. This memorandum and the attachment do not represent an NRC staff position.

Docket No. 50-289

Enclosure: As stated

November 1, 2012

MEMORANDUM TO: Meena Khanna, Chief
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

FROM: Peter Bamford, Project Manager */ra/*
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

SUBJECT: THREE MILE ISLAND, UNIT NO. 1 - ELECTRONIC TRANSMISSION,
DRAFT REQUEST FOR ADDITIONAL INFORMATION REGARDING
2011 STEAM GENERATOR TUBE INSPECTION REPORT (TAC NO.
ME8735)

The attached draft request for additional information (RAI) was transmitted by electronic transmission on November 1, 2012, to Ms. Stephanie Hanson, at Exelon Generation Company, LLC (Exelon, the licensee). This draft RAI was transmitted to facilitate the technical review being conducted by the Nuclear Regulatory Commission (NRC) staff and to support a conference call (if needed) with Exelon in order to clarify the licensee's 2011 steam generator tube inspection report. The draft RAI is related to Exelon's submittal, dated May 15, 2012, regarding the results of the 2011 steam generator tube inspections at Three Mile Island, Unit 1. The draft questions were sent to ensure that they were understandable, the regulatory basis was clear, and to determine if the information was previously docketed. Additionally, review of the draft RAI would allow Exelon to evaluate and agree upon a schedule to respond to the RAI. This memorandum and the attachment do not represent an NRC staff position.

Docket No. 50-289

Enclosure: As stated

DISTRIBUTION:

Public

RidsNrrPMThreeMileIsland Resource

LPL1-2 R/F

Accession No.: ML12306A454 * via memorandum

OFFICE	LPL1-2/PM	ESGB/BC
NAME	PBamford	GKulesa*
DATE	11/01/2012	08/30/2012

OFFICIAL RECORD COPY

DRAFT

REQUEST FOR ADDITIONAL INFORMATION
THREE MILE ISLAND NUCLEAR STATION, UNIT 1
2011 STEAM GENERATOR TUBE INSPECTIONS
DOCKET NO. 50-289

By letter dated May 15, 2012, (Agencywide Documents Access and Management System (ADAMS) Accession Number ML12143A406), Exelon Generation Company, LLC (Exelon, the licensee), submitted information summarizing the results of the 2011 steam generator (SG) tube inspections performed at Three Mile Island, Unit 1 (TMI-1). In addition to this report, the U.S. Nuclear Regulatory Commission (NRC) staff summarized information concerning the 2011 SG tube inspections at TMI-1 in a letter dated February 9, 2012 (ADAMS Accession No. ML120300547). Further, in a letter dated February 13, 2012 (ADAMS Accession No. ML120270416), the NRC staff documented a summary of a meeting held with Exelon and Entergy Operations Inc., to discuss tube-to-tube wear in once-through SGs. The NRC staff has determined that the additional information requested below is needed to complete its review of the 2011 SG inspection report for TMI-1.

1. In order for the staff to better understand your inspection results, please provide the following general design information:
 - a. Tube manufacturer
 - b. Tube pitch (and whether it is square or triangular)
 - c. Please provide a diagram depicting your tube support naming convention and provide a tubesheet map showing the rows and columns of the tubes.
 - d. Please discuss if any stress relief was performed on the tubing following the thermal treatment of the Alloy 690 tubing.
2. Please clarify what is meant by the “best estimate structural limit” and “End of Cycle, High Probability limit.” For example, is the best estimate structural limit the value determined assuming mean material properties and mean non-destructive examination uncertainties? What probability and confidence levels are used for the various input parameters used in determining the two structural limits? What were the yield and ultimate strengths used in calculating the structural limits and how were they determined?
3. For wear at two lands, you indicate that the acceptance criteria is exceeded (limiting load of 3104 pounds), but that is acceptable due to the conservatism in defining the circumferential extent of the wear scar. Please discuss the conservatisms in determining the circumferential extent of the wear scars. In addition, please discuss whether this is consistent with industry guidelines for

Enclosure

DRAFT

- 2 -

determining condition monitoring and operational assessments limits. If it isn't consistent, please discuss your plans for submitting a deviation per Nuclear Energy Institute 03-08.

4. In discussing the wear indications detected at the tube support plate elevations, the term "structural length" is used. Please clarify this term. Is it the length of the limiting portion of the flaw from a structural integrity standpoint? If so, was it determined for all flaws or just a subset of the flaws (i.e., those that were inspected with an array probe)?
5. Regarding the tubes with wear attributed to tube-to-tube contact, please discuss whether these tubes also have indications at the tube support plate elevations and whether there are any unique trends regarding the location of the tube support plate wear indications (e.g., all located at the upper edge of the tube support plate, all extend beyond the tube support plate, all tubes with tube-to-tube wear indications have corresponding tube support plate wear indications at supports 8 and 9, etc.). Please discuss whether the wear at the tube support plates is oriented in a specific direction (e.g., all are pointing to the center of the bundle). Please provide the mid-point of the tube (e.g., 8S + 20 inches).
6. Please clarify whether all indications of wear attributed to tube-to-tube support plate interaction were contained within the axial elevation of the tube support plate.
7. Please provide a summary of the cause of the wear attributed to tube-to-tube contact, as well as any planned corrective actions.