

# CATEGORY 1

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SUBJECT: Forwards response to NRC 951205 RAI re GL 95-03,  
"Circumferential Cracking of SG Tubes."

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January 12, 1996

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

Ladies/Gentlemen:

Docket 50-305  
Operating License DPR-43  
Kewaunee Nuclear Power Plant  
Response to Request for Additional Information Regarding Generic Letter 95-03

- References
- 1) NRC Generic Letter 95-03 "Circumferential Cracking of Steam Generator Tubes", dated April 28, 1995.
  - 2) Letter from C.R. Steinhardt (WPSC) to Document Control Desk (NRC) dated June 27, 1995.
  - 3) Letter from R. J. Laufer (NRC) to M.L. Marchi (WPSC) dated December 5, 1995.

On April 28, 1995, the U.S. Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 95-03, "Circumferential Cracking of Steam Generator Tubes," which requested addresses to evaluate recent operating experience related to circumferential cracking, justify continued operation until the next scheduled steam generator inspection, and develop plans for the next steam generator tube inspections. Wisconsin Public Service Corporation (WPSC) responded to the GL by letter dated June 27, 1995.

By letter dated December 5, 1995 the NRC staff requested additional information in order to complete a review of the GL response. The attachment to this letter provides a written response to NRC staff questions. Please contact a member of my staff if you have any questions or require additional information.

Sincerely,

Clark R. Steinhardt  
Senior Vice President - Nuclear Power

Subscribed and Sworn to  
Before Me This 12<sup>th</sup> Day  
of January 1996

Notary Public, State of Wisconsin

SLB  
Attach.

cc - US NRC, Region III  
US NRC Senior Resident Inspector  
Mr. Lanny Smith, PSCW

My Commission Expires:

June 13, 1999

*Handwritten initials: A001*

ATTACHMENT

Letter from C. R. Steinhardt (WPSC)

To

Document Control Desk (NRC)

Dated

January 12, 1996

**Response to Request For Additional Information  
Related to Generic Letter 95-03  
Kewaunee Nuclear Power Plant**

**NRC Question 1**

Please clarify the inspections performed in the U-bend region of tubes with small radii (i.e., Rows 1 and 2) during your previous inspection.

**Response to Question 1**

During the Spring 1995 refueling outage we inspected 100% of the active Row 1 tubes and 30% of the active Row 2 tubes using a motorized rotating pancake coil (MRPC) probe in the U-bend region.

**NRC Question 2**

Please clarify the inspections performed during your previous inspection at locations where Combustion Engineering (CE) welded sleeves have been installed.

**Response to Question 2**

During the Spring 1995 refueling outage we inspected all 16 CE welded sleeves at the upper sleeve-to-tube attachment using the MRPC plus-point probe.

**NRC Question 3**

As a result of discovering circumferentially oriented degradation at the top of the tubesheet, other plants with partial depth roll expansions perform inspections with techniques capable of detecting circumferentially oriented degradation in this region. If this area is susceptible to circumferential cracking, please provide the information requested in Generic Letter (GL) 95-03 (e.g., past inspection scope and results.)

**Response to Question 3**

During the Spring 1995 refueling outage we inspected 100% of the open (nonsleeved) tubesheet hot leg crevice region using a MRPC probe. The extent of the examination was from tube end to approximately three inches above the top of the tubesheet. No circumferential cracks have been detected at the top of the tubesheet in the Kewaunee steam generators.

#### NRC Question 4

In your response to GL 95-03, it was indicated that the most recent industry guidance would be used in determining the inspection scope and expansion criteria. Please clarify the inspection scope and expansion criteria to be used during your next scheduled steam generator tube inspection for all locations susceptible to circumferential cracking. In addition, please clarify the criteria to which the probes used during this inspection will be qualified to (e.g., Appendix H of the EPRI PWR Steam Generator Examination Guidelines).

#### Response to Question 4

The three regions potentially susceptible to circumferential cracking are the tube-to-tubesheet expansion, the row 1 and 2 U-bends and the upper tube-to-sleeve attachment in the Westinghouse hybrid expansion joint (HEJ) sleeves. During our next scheduled steam generator inspection, Fall of 1996, we will be performing: a 100% inspection of the active row 1 U-bends; a 30% inspection of the active row 2 U-bends; and a 100% inspection of the hot leg crevice region from tube end to approximately 3 inches above the top of the tubesheet using a MRPC probe. A 100% inspection will be performed of the upper HEJ sleeves using a MRPC plus point probe. If one or more indications are detected in the row 2 U-bends, the inspection scope will be expanded to 100% of the row 2 U-bends.

The probes used during the Fall 1996 inspection will be qualified to Appendix H of the EPRI Guidelines. However, circumstances may arise which require the use of an augmented inspection technique that has not received 'formal' Appendix H qualification. For these applications the intent of Appendices G and H will be demonstrated through a site-specific program.

#### NRC Question 5

During the Maine Yankee outage in July/August 1994, several weaknesses were identified in their eddy current program as detailed in NRC Information Notice 94-88, "Inservice Inspection Deficiencies Result in Severely Degraded Steam Generator Tubes." In Information Notice 94-88, the NRC staff observed that several circumferential indications could be traced back to earlier inspections when the data was reanalyzed using terrain plots. These terrain plots had not been generated as part of the original filed analysis for these tubes. For the rotating pancake coil (RPC) examinations performed at your plant at locations susceptible to circumferential cracking during the previous inspection (i.e., previous inspection per your Generic Letter 95-03 response), discuss the extent to which terrain plots were used to analyze the eddy current data. If terrain plots

were not routinely used at locations susceptible to circumferential cracking, discuss whether or not the RPC eddy current data has been reanalyzed using terrain mapping of the data. If terrain plots were not routinely used during the outage and your data has not been reanalyzed with terrain mapping of the data, discuss your basis for not reanalyzing your previous RPC data in light of the findings at Maine Yankee.

Discuss whether terrain plots will be used to analyze the RPC eddy current data at locations susceptible to circumferential cracking during your next steam generator tube inspection (i.e., the next inspection per your Generic Letter 95-03 response).

Response to Question 5

Terrain plots have always been generated and used for analyzing MRPC eddy current data at Kewaunee. Terrain plots will be generated and used to analyze the MRPC eddy current data during the Fall 1996 refueling outage.