

November 3, 2004

Mr. G. Peterson
Vice President
McGuire Nuclear Station
Duke Energy Corporation
12700 Hagers Ferry Road
Huntersville, NC 28078-8985

SUBJECT: MCGUIRE NUCLEAR STATION, UNIT 1 - REQUEST FOR ADDITIONAL
INFORMATION RE: END OF CYCLE 16 STEAM GENERATOR INSERVICE
INSPECTION SUMMARY REPORT (TAC NO. MC4275)

Dear Mr. Peterson:

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated April 29 and June 22, 2004, Duke Energy Corporation submitted, as required per regulation, the results of the McGuire Nuclear Station (McGuire), Unit 1 steam generator tube surveillance program and the McGuire, Unit 1 inservice inspection outage summary for the end of fuel cycle 16. The NRC staff has reviewed the information you provided and determined that additional information is required, as identified in the enclosure. I discussed these questions with your staff on October 14, 2004. Your staff indicated that a response could be provided within 30 days of the date of this letter.

If you have any further questions on this matter, please call me at (301) 415-1388.

Sincerely,

/RA/

James J. Shea, Project Manager, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-369

Enclosure: Request for Additional Information

cc w/encl: See next page

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REQUEST FOR ADDITIONAL INFORMATION

END OF CYCLE 16 STEAM GENERATOR INSERVICE INSPECTION SUMMARY REPORT

MCGUIRE NUCLEAR STATION, UNIT 1

1. Three volumetric indications near the tubesheet on the cold-leg side were identified in Row 96, Column 33 of steam generator (SG) A. This tube was removed from service by plugging. This tube location appears to be in the periphery of the tube bundle (as inferred from a tubesheet map from Catawba Nuclear Station, Unit 1). Please discuss the suspected cause of these indications. If a foreign object is suspected to have caused these indications, was the foreign object positively identified? Was the suspected object removed? If visual inspections were not performed and/or the object was not removed, discuss what actions/analyses were performed to ensure that the potential object(s) do not compromise the integrity of this tube (tube severance and subsequent damage to neighboring tubes) and neighboring tubes for the period of time between inspections. Please discuss prior inspection results for this tube. In general, please discuss what actions were taken to identify loose parts in the SGs during the outage (e.g., foreign object search and retrieval, low frequency eddy current examination).

2. In order for the NRC staff to better understand the location of the indications described in your reports, please provide a sketch of a tubesheet map which depicts the rows and columns of the tubes in the McGuire Nuclear Station, Unit 1 SGs. In addition, please provide the radius and row numbers of the smallest radii tubes in the SGs as well as a description of which tubes, if any, received a stress relief after bending (e.g., stress relief of the entire tube length for the tubes in rows 1 through 27).

Given that the replacement SGs for McGuire, Units 1 and 2, and Catawba, Unit 1 were manufactured at nearly the same time and by the same manufacturer, please indicate whether these SGs are essentially identical (e.g., identical tubesheet map, support structures, U-bend radii, stress relief of U-bend, number and naming of fan bars, etc.). If the SGs between the units have significant differences, please identify these differences.

3. In your report you indicate that tube-to-tube contact is an area of concern for the replacement SGs. Please discuss how many tubes are currently considered to be in close proximity and whether any tube wear has been observed at the location of "close proximity." In addition, please discuss whether the number of tubes affected by tube-to-tube contact has increased, decreased, or remained the same since the SGs were installed. If the number of tubes in close proximity is increasing with time, please discuss the cause (the NRC staff understands that the tube proximity issue is a result of manufacture and that it was expected that the "condition" may correct itself with time).

4. Please discuss the specific criteria used to select special interest locations in which tubes are inspected using the rotating probe. Additionally, please explain why certain absolute drift indications were examined with a rotating probe while others were not.

Enclosure

5. Your report identifies the population of tubes that are experiencing wear at fan bar locations. Please discuss whether the extent to which these wear indications are considered “typical fan bar wear,” “atypical U-bend wear,” or “localized U-bend wear.” Typical fan bar wear refers to wear caused by the thermal hydraulic conditions and tube-to-support clearances which can vary because of manufacturing tolerances. Atypical U-bend wear refers to pit-like indications found at flat-bar supports and theorized to be the result of asperities on the flat bars introduced during fabrication. Localized U-bend wear refers to wear “localized” to specific columns of tubes and possibly the adjacent column as a result of arch-bar distortion instead of a more random manufacturing tolerance issue (which causes typical fan bar wear).
6. Each SG inspected contained tubes with dent indications. Please clarify your reporting threshold for dents and discuss whether the calibration procedure (for measuring the size of dents) is consistent with that described in industry guidelines. Also discuss whether any of the dents are service induced or have increased in size as a result of service conditions (i.e., are any of the dents not present in the baseline inspection and/or have any of them exhibited significant change since the baseline inspection). Discuss the reason for any changes.
7. Please discuss whether the rotating probe examinations performed at the top of the tubesheet region included the tubes that were not fully expanded or were overexpanded.
8. A review of your past reports indicates that a total of 13 tubes (2 tubes in SG A, 2 tubes in SG B, 5 tubes in SG C, and 4 tubes in SG D) have been removed from service by plugging in the replacement SGs at McGuire, Unit 1. Please discuss the cause of plugging for each tube removed from service.

McGuire Nuclear Station, Units 1 & 2

cc:

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