January 5, 2004

Mr. D. M. Jamil
Vice President
Catawba Nuclear Station
Duke Energy Corporation
4800 Concord Road
York, SC 29745

SUBJECT: CATAWBA NUCLEAR STATION, UNIT 2 RE: REQUEST FOR ADDITIONAL INFORMATION (TAC NO. MC0957)

Dear Mr. Jamil:

By letters dated April 7, 2003, and June 18, 2003, you submitted information summarizing the End of Core 12 steam generator tube inservice inspection for Catawba, Unit 2. The Nuclear Regulatory Commission technical staff has reviewed the application and has determined that additional information is required for the staff to complete its review, as identified in the Enclosure.

We discussed these issues with your staff on December 17, 2003. Your staff indicated that you would attempt to provide your response by January 31, 2004.

Please contact me at (301) 415-1842, if you have any other questions on these issues.

Sincerely,

/RA/

Sean E. Peters, Project Manager, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-414

Enclosure: Request for Additional Information

cc w/encl: See next page

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REQUEST FOR ADDITIONAL INFORMATION

DUKE POWER COMPANY

CATAWBA NUCLEAR STATION, UNIT 2

DOCKET NO. 50-414

The Nuclear Regulatory Commission (NRC) staff has reviewed the licensee's submittals dated April 7, 2003, and June 18, 2003, regarding the End of Core (EOC) 12 steam generator tube inservice inspection for Catawba Unit 2. The NRC staff has identified the following information that is needed to enable the continuation of its review.

1. Of the 33 tubes taken out of service during the EOC 12 outage, you plugged 29 tubes for preventative reasons. The eddy current result for approximately one-half of these 29 tubes was denting with a volumetric indication. In an RAI response for questions regarding the previous (EOC 11) outage report (report dated November 21, 2002, ADAMS Report No. ML023380276), you stated that the volumetric term was used to include several types of indications, including manufacturing burnish marks, intergranular attack, and wear. You also stated that any eddy current indication given the volumetric description was subject to a dispositioning process that considered the previous history of the tube and the signature of the eddy current signal, and that the information required to disposition these indications was contained in neither the database nor the report.

    a. Provide a more descriptive technical basis explaining why tubes with denting and volumetric indications were taken out of service during the EOC 12 outage. Include the disposition for each of these volumetric indications (e.g., wear, intergranular attack, etc.).

    b. NRC staff examination of the eddy current data sheets disclosed several tubes, not taken out of service, also with denting and volumetric indications (three examples are tubes 2B-8-103, 2C-4-78, and 2D-42-64). Discuss the technical basis for why these three tubes with denting and volumetric indications were not taken out of service, given that other tubes with similar indications were removed from service.

2. The NRC staff compared the eddy current data from the EOC 12 outage inspection report with the data from the EOC 11 outage inspection report (report dated October 24, 2001, ADAMS Report No. ML013410150). This exercise identified several tubes, reported in both outage reports, with indications where the percent wall thickness penetration value was greater than 30 percent. In nearly every case, no growth of these indications was noticed. However, tube 2D-48-78 (location AV4) was noted as having a 33 percent wall thickness penetration value in the EOC 12 outage report, but was not noted in the EOC 11 outage report. Therefore, it is assumed that no tube wall degradation was detected in tube 2D-48-78 during the EOC 11 outage inspection and that the majority of the degradation detected during the EOC 12 outage inspection

occurred since the EOC 11 outage inspection. According to the EOC 12 outage inspection report, tube 2D-48-78 was not plugged. Since the degradation occurred at an antivibration bar, it is assumed that the degradation was caused by wear. The wear rate for tube 2D-48-78 at AV4 appears to be significantly higher than that typically seen at Catawba, Unit 2.

Discuss your predictions for tube 2D-48-78 in terms of future wear rates as well as the condition of tube 2D-48-78 during the next planned steam generator inspection.

3. The NRC staff noted that you plugged tubes 2A-1-100 and 2A-1-106 due to an "anomalous U-bend indication." Describe what is meant by anomalous U-bend indication and the reason for preventative plugging of these tubes. Clarify whether service-induced degradation was present in these tubes.

4. The NRC staff noted that you preventatively plugged tube 2C-4-77 due to "U-bend voltage offset." Describe what is meant by U-bend voltage offset and the reason for preventative plugging of this tube. Clarify whether service-induced degradation was present in this tube.

5. The NRC staff's comparative examination of the eddy current data from the EOC 12 and EOC 11 outage inspection reports showed that, for a given tube, an indication may have been noted as HNI (defined as "has not changed indication") in the EOC 11 outage report and noted as VOL (defined as "volumetric") in the EOC 12 outage report. One example is tube 2A-1-64.

   Explain why different codes were used for the same indication for the EOC 11 and EOC 12 outage reports. Clarify whether the indication is changing over time. If so, discuss whether this is indicative of a service-induced degradation mechanism.

6. The EOC 11 outage inspection report noted that no tubes were plugged. During the EOC 12 outage, you plugged 33 tubes, 20 of which were for reasons other than loose parts or wear. In the preceding questions, the NRC staff has requested additional information regarding the reasons for the preventative plugging of specific tubes, since it is not obvious from the information provided in the report if the plugging was initiated due to the presence of service-induced degradation.

   Discuss why there was an increase in the number of tubes plugged during EOC 12. If the tube plugging was performed due to service-induced degradation, discuss whether the tubes are experiencing degradation from mechanisms which are new to, and previously unaccounted for, in the Catawba, Unit 2 steam generator tubes.

Catawba Nuclear Station

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