

Docket Nos.: 50-369
and 50-370

11 AUG 1986

Mr. H. B. Tucker, Vice President
Nuclear Production Department
Duke Power Company
422 South Church Street
Charlotte, North Carolina 28242

Dear Mr. Tucker:

Subject: Environmental Assessment on Steam Generator Tube Plugging
Amendment, McGuire Nuclear Station, Units 1 and 2

Enclosed is a copy of an "Environmental Assessment and Finding of No
Significant Impact" for your information. This assessment relates to
your application for amendments dated June 24, 1986, as revised
August 5, 1986, and supplemented July 1 and 23, 1986.

This assessment has been forwarded to the Office of the Federal
Register for publication.

Sincerely,

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Darl Hood, Project Manager
PWR Project Directorate #4
Division of PWR Licensing-A

Enclosure: As stated

cc: See next page

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Duke Power Company

McGuire Nuclear Station

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UNITED STATES NUCLEAR REGULATORY COMMISSIONDUKE POWER COMPANYDOCKET NOS. 50-369 AND 50-370ENVIRONMENTAL ASSESSMENT AND FINDING OFNO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of amendments to the Duke Power Company (the licensee) for the McGuire Nuclear Station, Units 1 and 2, located in Mecklenburg County, North Carolina.

ENVIRONMENTAL ASSESSMENT

Identification of Proposed Action: The amendments would revise Technical Specification (TS) 3/4.4.5, "Steam Generators" and its bases. The revision would eliminate the requirement for plugging of a steam generator tube if the tube defects are located at least 2 inches below the top of the tubesheet. The associated bases 3/4.4.5 would be supplemented to distinguish between requirements for plugging of tubes with defects located at least two inches below the top of the tubesheet and those located elsewhere in the tubes.

These revisions to the Technical Specifications would be made in response to the licensee's application for amendments dated June 24, 1986, as revised August 5, 1986, and supplemented July 1 and 23, 1986.

The Need for the Proposed Action: The proposed amendments would avoid the plugging of steam generator tubes when the location of defects is such that plugging is unnecessary. The amendments, therefore, preclude the attendant radiation exposure which would otherwise be incurred by plant workers involved with tube plugging operations. The proposed amendments would also maintain operational flexibility by avoiding a loss of margin in reactor coolant system flow and therefore assist in assuring that minimum flow rates are maintained in excess of that required for operation at full power.

Environmental Impacts of the Proposed Action:

A. Occupational Radiological Exposure

During the current Unit 1 - Cycle 4 refueling outage, primary water stress corrosion cracking was observed in several previously hardroll-expanded steam generator tubes within the tubesheet region. Results of eddy current testing revealed 139 tubes with axial cracks within the tubesheet region in excess of the plugging depth limit of existing TS 4.4.5.4 (40% through wall). Of these 139 tubes, 106 are located at least 2 inches below the top of the tubesheet.

The proposed amendments are expected to reduce radiological exposure to workers by reducing the number of tubes required to be plugged. The licensee has determined that a radiation dose of approximately 310 person-millirem results to workers for each tube plugged. The 106 tubes which would not need to be plugged under the proposed change, therefore, would result in a savings of about 33 person-rem during the current Unit 1 - Cycle 4 refueling outage.

The reduction in occupational radiological exposure would increase if additional tubes in either McGuire unit are found during subsequent tests to contain cracks at least two inches below the top of the tubesheet.

B. Radiological Impacts During Plant Operation and Accidents

The licensee's submittal of August 5, 1986 includes an evaluation of primary-to-secondary leakage in a steam generator for tube through-wall cracks in the tubesheet region. The evaluation conservatively assumed a crack location which was less than 2 inches below the top face of the tubesheet. The evaluation considered both normal operation and accidents. For normal operation, the evaluation shows that the hardrolled joint between the tube and tubesheet will remain leaktight. Therefore, no increase in steam generator leakage during normal operation, and no attendant increase in plant radiological

releases to the environment, is associated with the proposed amendments. Similarly, the evaluations considered accidents such as main steam line and feedwater line breaks which increase tube differential pressure and the driving head for a leak, and which, therefore, represent events with the largest potential for increasing primary-to-secondary leakage. The evaluations show that, because of the effect of the hardroll, no increase in primary-to-secondary leakage would occur during or after an accident. Results of the evaluation are also confirmed by laboratory tests.

The Commission has reviewed these evaluations and test results and finds them acceptable. We find that the proposed amendments would not cause any adverse changes in radiological impacts during normal operations as reported in Section 5.5 of the "Final Environmental Statement Related to Operation of William B. McGuire Nuclear Station Units 1 and 2," (FES) dated April 1976, nor any adverse changes to radiological impacts of postulated accidents as reported in Chapter 7 of the FES. Therefore, no adverse change in radiological impacts to the environment would result from the proposed amendments.

C. Non-Radiological Impacts

The proposed amendments involve systems located entirely within the restricted area as defined in 10 CFR Part 20. They do not affect non-radiological plant effluents and have no other environmental impact. Therefore, the Commission concludes that there are no significant non-radiological environmental impacts associated with the proposed amendments.

Alternative to the Proposed Actions: Since we have concluded that no adverse environmental effects are associated with the proposed action, any alternatives would have equal or greater environmental impact and need not be selected.

The principal alternative would be to deny the requested amendments. That alternative, in effect, is the same as the "no action" alternative because either case would require the licensee to plug tubes in accordance with existing TS requirements. (As an alternative to plugging, the licensee could request further TS changes to allow repairs of tubes by a tube sleeving technique. Although sleeving would result in less loss of margin in available reactor coolant system flow, it would result in more than twice the dose to workers involved with sleeving installation than the dose resulting from inserting of mechanical, removable plugs. Sleeving within the tubesheet region would also preclude further repairs of that same tube within its remaining tube length without substantial additional worker exposure associated with sleeve removal and replacement.) Neither plugging nor sleeving would reduce environmental impacts associated with correction of steam generator tube imperfections when compared to the proposed amendment, but both would result in reduced margins in reactor coolant system flow and increased occupational radiological exposure to plant workers.

Alternative Use of Resources: This action does not involve the use of resources not previously considered in connection with the Nuclear Regulatory Commission's Final Environmental Statement dated April 1976 or its addendum dated January 1981 related to this facility.

Agencies and Persons Consulted: The NRC staff reviewed the licensee's requests of June 24, July 1 and 23, and August 5, 1986, and did not consult other agencies or persons.

Finding of No Significant Impact: The Commission has determined not to prepare an environmental impact statement for the proposed license amendments.

Based upon this environmental assessment, we conclude that the proposed action will not have a significant adverse effect on the quality of the human environment.

For further details with respect to this action, see the request for amendments dated June 24, 1986, as revised August 5, 1986, and supplements dated July 1 and 23, 1986, which are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C. 20555 and at the Atkins Library, University of North Carolina, Charlotte (UNCC Station), North Carolina 28223.

Dated at Bethesda, Maryland this 11th day of August 1986.

FOR THE NUCLEAR REGULATORY COMMISSION

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Dave Wigginton, Acting Director
PWR Project Directorate #4
Division of PWR Licensing-A

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