

March 8, 1990

Dockets Nos. 50-369  
and 50-370

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

Dear Mr. Tucker:

SUBJECT: MCGUIRE NUCLEAR STATION, UNITS 1 AND 2 - NOTICE OF CONSIDERATION  
OF ISSUANCE OF AMENDMENTS AND PROPOSED NO SIGNIFICANT HAZARDS  
CONSIDERATION DETERMINATION AND OPPORTUNITY FOR HEARING  
(TACS NOS. 75995/75996)

The Commission has requested the Office of the Federal Register to publish the enclosed "Notice of Consideration of Issuance of Amendments to Facility Operating Licenses and Proposed No Significant Hazards Consideration Determination and Opportunity for Hearing." This notice relates to your application for amendments dated February 15, 1990, which would revise the Technical Specifications for the McGuire Nuclear Station, Units 1 and 2, to allow the use of Babcock and Wilcox sleeves for steam generator repair as an alternative to tube removal by use of plugs.

Sincerely,

ORIGINAL SIGNED BY:

Darl S. Hood, Project Manager  
Project Directorate II-3  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Enclosure:  
Notice

cc w/enclosure:  
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Duke Power Company

McGuire Nuclear Station

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UNITED STATES NUCLEAR REGULATORY COMMISSIONDUKE POWER COMPANYDOCKETS NOS. 50-369 AND 50-370NOTICE OF CONSIDERATION OF ISSUANCE OF AMENDMENTS TO  
FACILITY OPERATING LICENSES AND PROPOSED NO SIGNIFICANT HAZARDS  
CONSIDERATION DETERMINATION AND OPPORTUNITY FOR HEARING

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of amendments to Facility Operating Licenses Nos. NPF-9 and NPF-17 issued to Duke Power Company (the licensee) for operation of McGuire Nuclear Station, Units 1 and 2, located in Mecklenburg County, North Carolina.

In accordance with the licensee's application dated February 15, 1990, the proposed amendments would change the Technical Specifications (TSs) to allow the use of Babcock and Wilcox (B&W) sleeves for steam generator tube repair as an alternative to tube removal from service by use of plugs. Specifically, the alternative to repair would be implemented by changing "tube" to "tube or sleeve" in the definitions and acceptance criteria of "Imperfection" (TS 4.4.5.4.a.1), "Degradation" (TS 4.4.5.4.a.2), "Degraded Tube" (TS 4.4.5.4.a.3), "% Degradation" (TS 4.4.5.4.a.4), "Defect" (TS 4.4.5.4.a.5), "Plugging Limit" (TS 4.4.5.4.a.6), and "Unserviceable" (TS 4.4.5.4.a.7). The term "Plugging Limit" (TS 4.4.5.4.a.6) would be changed to "Repair Limit", and its present definition (which refers to removal from service by plugging) would be supplemented to include repair by sleeving. Corresponding changes regarding plugging "or repairing" would be made to TS 4.4.5.4.b. Similarly, the contents of the Special Report required by TS 4.4.5.5 to be submitted to the Commission would

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be expanded to include identification of the tubes plugged "or repaired." The new definition and acceptance criteria for "Repair Limit" (TS 4.4.5.4.a.6) would also specify that "If a tube is sleeved due to degradation in the F\* distance, then any defects in the tube below the sleeve will remain in service without repair," and that "The Babcock & Wilcox process (or method) equivalent to the method described in Topical Report BAW-2045(P)-A will be used."

Before issuance of the proposed license amendments, the Commission will have made findings required by the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations.

The Commission has made a proposed determination that the request for amendments involves no significant hazards consideration. Under the Commission's regulations in 10 CFR 50.92, this means that operation of the facility in accordance with the proposed amendments would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

By letter of January 4, 1990, to B&W, the NRC approved B&W Topical Report BAW-2045(P), "Recirculating Steam Generator Kinetic Sleeve Qualification for 3/4 Inch OD Tubes." This topical report, submitted to the NRC June 9, 1989, and supplemented December 12, 1989, describes the sleeving process to repair a degraded tube in order to maintain the function and integrity of the tube. Sleeving is advantageous to plugging because the sleeved tube remains in service and functions in much the same manner as the original tube while the sleeve

serves as a replacement pressure boundary for the degraded portion of the tube. The sleeving process also results in lower radiological exposure to workers than the plugging alternative and does not increase the types or amounts of effluents or waste that may be released offsite.

The topical report provided results of the sleeve design verification which included analysis and confirmatory testing to confirm the sleeving technique for defective tubes. The sleeve is qualified in two lengths, 11 inches and 17.5 inches. The shorter sleeve can be used in all tube locations, including peripheral tubes, and the longer sleeve would be used when it is desirable to extend further into the tube past the flow distribution baffle. The design and operating conditions specified in the topical report for the sleeve bound the McGuire steam generator design conditions. The sleeve material, thermally tested Alloy 690 Inconel, is also more resistant to corrosion phenomenon than the tubes.

The present TS 4.4.5.4 requires that tubes with an imperfection depth of 40% of the nominal wall thickness be plugged. This plugging limit does not apply for imperfections located more than two inches below the top face of the tube sheet or the top of the last hardroll (i.e., beyond the so-called F\* distance), provided the tube is not degraded within the top 2 inches (i.e., within the F\* distance). This exclusion was previously approved by the NRC by McGuire Amendments 89 (Unit 1) and 70 (Unit 2) because defects located beyond the F\* distance do not affect steam generator integrity or leakage. The proposed change would preserve this existing provision (and recognize that the function of the tube is replaced by the function of the sleeve) by specifying that if a tube is sleeved due to degradation in the F\* distance, then any defects in the

tube below the sleeve will remain in service without repair. For imperfections located elsewhere, the proposed change would require repair by sleeving or removal by plugging for all tubes or sleeves with imperfections exceeding the repair limit of 40% of the tube or sleeve nominal wall thickness.

The NRC staff has reviewed the licensee's submittal and the B&W topical report, and has reached the following conclusions:

(1) Operation of McGuire in accordance with the proposed amendments would not involve a significant increase in the probability or consequences of an accident previously evaluated. Considering the function of the sleeve, the principal accident associated with this change is the steam generator tube rupture accident. The probability or consequences of this previously evaluated accident do not involve a significant increase since the sleeve meets the original tube design conditions, and the structural integrity of the tube is maintained by the sleeving process and surveillance requirements. The sleeve is less susceptible to the identified stress corrosion failure mechanisms of the original tube because of the use of improved material (Alloy Inconel 690); therefore, the potential for primary-to-secondary leakage is also reduced by the addition of a steam generator tube sleeve. The continued integrity of the sleeve will be verified by TS inspection requirements, and the sleeve will be plugged, if necessary, in accordance with TSs.

(2) Operation of McGuire in accordance with the proposed amendments would not create the possibility of a new or different kind of accident from any accident previously evaluated. The purpose of the sleeve is to repair a defective steam generator tube to maintain the function and integrity of the tube as opposed to plugging and removing the tube from service. The sleeve

functions in essentially the same manner as the original tube and has been analyzed and tested for steam generator design conditions. Repairing a steam generator tube to a serviceable condition utilizing the proposed sleeve process does not create the possibility of a new or different type of accident since the sleeve is a passive component with failure mechanisms that are similar to the original tube.

(3) Operation of McGuire in accordance with the proposed amendments would not involve a significant reduction in a margin of safety. The structural integrity of the tube is maintained by the installation of the sleeve. The potential for primary-to-secondary leakage is reduced by the addition of the steam generator tube sleeve. The sleeve material is less susceptible to the failure mechanisms of the original tube. The effects of sleeve installation (versus tube plugging) on steam generator performance, heat transfer, flow restriction, and steam generation capacity were analyzed and described in the topical report. The results show that plugging one tube is equivalent to the heat transfer reduction of sleeving 48 tubes, the primary flow reduction of sleeving 20 tubes, and the loss of steam generation capacity of sleeving 40 tubes. This means sleeving is preferable to plugging when considering core margins for most safety analysis. Furthermore, the use of sleeving is bounded by the existing loss of coolant accident (LOCA) analysis. For the purpose of this analysis, 20 sleeves have the same effect as plugging one tube.

Accordingly, the Commission proposes to determine that the proposed changes do not involve a significant hazards consideration.

The Commission is seeking public comments on this proposed determination. Any comments received within 30 days after the date of publication of this



notice will be considered in making any final determination. The Commission will not normally make a final determination unless it receives a request for a hearing.

Written comments may be submitted by mail to the Regulatory Publications Branch, Division of Freedom of Information and Publications Services, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555, and should cite the publication date and page number of this FEDERAL REGISTER notice. Written comments may also be delivered to Room P-223, Phillips Building, 7920 Norfolk Avenue, Bethesda, Maryland, from 7:30 a.m. to 4:15 p.m. Copies of written comments received may be examined at the NRC Public Document Room, the Gelman Building, 2120 L Street, NW., Washington, DC. The filing of requests for hearing and petitions for leave to intervene is discussed below.

By April 13, 1990, the licensee may file a request for a hearing with respect to issuance of the amendments to the subject facility operating licenses and any person whose interest may be affected by this proceeding and who wishes to participate as a party in the proceeding must file a written request for a hearing and a petition for leave to intervene. Requests for a hearing and petitions for leave to intervene shall be filed in accordance with the Commission's "Rules of Practice for Domestic Licensing Proceedings" in 10 CFR Part 2. Interested persons should consult a current copy of 10 CFR 2.714 which is available at the Commission's Public Document Room, the Gelman Building, 2120 L Street, NW., Washington, DC 20555 and at the Local Public Document Room located at Atkins Library, University of North Carolina, Charlotte (UNCC Station), North Carolina 28223. If a request for a hearing or petition for leave to intervene is filed by the above date, the Commission or an Atomic Safety and

Licensing Board, designated by the Commission or by the Chairman of the Atomic Safety and Licensing Board Panel, will rule on the request and/or petition and the Secretary or the designated Atomic Safety and Licensing Board will issue a notice of hearing or an appropriate order.

As required by 10 CFR 2.714, a petition for leave to intervene shall set forth with particularity the interest of the petitioner in the proceeding, and how that interest may be affected by the results of the proceeding. The petition should specifically explain the reasons why intervention should be permitted with particular reference to the following factors: (1) the nature of the petitioner's right under the Act to be made party to the proceeding; (2) the nature and extent of the petitioner's property, financial, or other interest in the proceeding; and (3) the possible effect of any order which may be entered in the proceeding on the petitioner's interest. The petition should also identify the specific aspect(s) of the subject matter of the proceeding as to which petitioner wishes to intervene. Any person who has filed a petition for leave to intervene or who has been admitted as a party may amend the petition without requesting leave of the Board up to fifteen (15) days prior to the first prehearing conference scheduled in the proceeding, but such an amended petition must satisfy the specificity requirements described above.

Not later than fifteen (15) days prior to the first prehearing conference scheduled in the proceeding, a petitioner shall file a supplement to the petition to intervene which must include a list of the contentions which are sought to be litigated in the matter. Each contention must consist of a specific statement of the issue of law or fact to be raised or controverted. In

addition, the petitioner shall provide a brief explanation of the bases of the contention and a concise statement of the alleged facts or expert opinion which support the contention and on which the petitioner intends to rely in proving the contention at the hearing. The petitioner must also provide references to those specific sources and documents of which the petitioner is aware and on which the petitioner intends to rely to establish those facts or expert opinion. Petitioner must provide sufficient information to show that a genuine dispute exists with the applicant on a material issue of law or fact. Contentions shall be limited to matters within the scope of the amendments under consideration. The contention must be one which, if proven, would entitle the petitioner to relief. A petitioner who fails to file such a supplement which satisfies these requirements with respect to at least one contention will not be permitted to participate as a party.

Those permitted to intervene become parties to the proceeding, subject to any limitations in the order granting leave to intervene, and have the opportunity to participate fully in the conduct of the hearing, including the opportunity to present evidence and cross-examine witnesses.

If a hearing is requested, the Commission will make a final determination on the issue of no significant hazards consideration. The final determination will serve to decide when the hearing is held.

If the final determination is that the request for amendments involves no significant hazards consideration, the Commission may issue the amendments and make them effective, notwithstanding the request for a hearing. Any hearing held would take place after issuance of the amendments.

If a final determination is that the amendments involve a significant hazards consideration, any hearing held would take place before the issuance of any amendments.

Normally, the Commission will not issue the amendments until the expiration of the 30-day notice period. However, should circumstances change during the notice period such that failure to act in a timely way would result, for example, in derating or shutdown of the facility, the Commission may issue the license amendments before the expiration of the 30-day notice period, provided that its final determination is that the amendments involve no significant hazards consideration. The final determination will consider all public and State comments received. Should the Commission take this action, it will publish a notice of issuance and provide for opportunity for a hearing after issuance. The Commission expects that the need to take this action will occur very infrequently.

A request for a hearing or a petition for leave to intervene must be filed with the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Docketing and Service Branch, or may be delivered to the Commission's Public Document Room, the Gelman Building, 2120 L Street, NW., Washington, DC, by the above date. Where petitions are filed during the last ten (10) days of the notice period, it is requested that the petitioner promptly so inform the Commission by a toll-free telephone call to Western Union at 1-(800) 325-6000 (in Missouri 1-(800) 342-6700). The Western Union operator should be given Datagram Identification Number 3737 and the following message addressed to David B. Matthews: (petitioner's name and telephone number), (date petition was mailed), (plant name), and (publication


date and page number of this FEDERAL REGISTER notice). A copy of the petition should also be sent to the Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555, and to Mr. Albert Carr, Duke Power Company, 422 South Church Street, Charlotte, North Carolina 28242, attorney for the licensee.

Nontimely filings of petitions for leave to intervene, amended petitions, supplemental petitions and/or requests for hearing will not be entertained absent a determination by the Commission, the presiding officer or the Atomic Safety and Licensing Board that the petition and/or request should be granted based upon a balancing of the factors specified in 10 CFR 2.714(a)(1)(i)-(v) and 2.714(d).

For further details with respect to this action, see the application for amendment dated February 15, 1990, Topical Report BAW-2045 dated June 1988, and letter dated January 4, 1990, from J. E. Richardson, NRC, to J. H. Taylor, B&W, accepting the topical report. These items are available for public inspection at the Commission's Public Document Room, the Gelman Building, 2120 L Street, NW., Washington, DC 20555 and at the Local Public Document Room located at Atkins Library, University of North Carolina, Charlotte (UNCC Station), North Carolina 28223.

Dated at Rockville, Maryland, this 8th day of March 1990.

FOR THE NUCLEAR REGULATORY COMMISSION



Lawrence P. Crocker, Acting Director  
Project Directorate II-3  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation