Duke Power Company
P.O. Box 1006
Charlotte, NC 28201-1006

M. S. Tuckman
Senior Vice President
Nuclear Generation
(704)382-2200 Office
(704)382-4360 Fax

DUKE POWER

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

Subject: McGuire Nuclear Station Units 1 & 2
Docket Nos. 50-369, 370
Proposed Technical Specification Changes

June 13, 1994.

Gentleman:

Pursuant to 10CFR50.90, please find attached proposed license amendments to facility operating licenses NPF-9 and NPF-17 for McGuire Nuclear Station Units 1 & 2 respectively. The proposed changes would increase the initial fuel enrichment limit from a current maximum of 4.0 weight % to 4.75 weight % and establish new loading patterns for new and irradiated fuel in the spent fuel pool to accommodate this increase. These changes are being submitted to increase the efficiency of fuel storage cell use in the spent fuel pools and to provide additional flexibility to the reload design efforts at Duke Power Company, while at the same time maintaining sufficient criticality safety margin and decay heat removal capabilities.

Summary results and discussion of criticality analyses for the Spent Fuel Pool and New Fuel Storage Vault, which underlie the proposed Limiting Conditions of Operation, are enclosed as well. These analyses were performed using methodology specifically developed for this application. Though not previously used at Duke Power Company, this methodology is based on NRC approved CASMO-3/ SIMULATE-3P computer models which are routinely used at Duke for core reload design. This methodology is described in detail in Appendix B of Attachment IV. Your review and approval of this methodology is also requested.

A summary of the Technical Specification changes being submitted is given in Attachment I. The accompanying No Significant Hazards (NSH) Analysis and Environmental Impact Statements are given in Attachments II and III, respectively. The technical basis for this submittal, accompanying calculational methodologies, and analytical results is given in Attachment IV.

Duke Power requests a timely review and approval of the proposed TS revisions. Approval by June, 1995 is essential in order to proceed with fuel material commitments to support the McGuire Unit 2, Cycle 11 refueling, scheduled for June of 1996.

240102

A001

Preliminary reload design analyses for this cycle are underway and call for fuel enrichments in excess of current limits, resulting in considerable cost savings.

Pursuant to 10CFR50.91 (b) (1), a copy of this amendment request has been provided to the appropriate North Carolina State officials.

Comparable changes are also under review for Catawba Nuclear Station Units 1 & 2, and are anticipated to be ready for submittal sometime in the near future. If you have any questions concerning the enclosed information, or there is anything else we can provide to assist in this effort, please contact Ms. Judith Twiggs at (704) 382-8897.

Very truly yours,

M.S. Tuckman

M.S. Tuckman
Senior Vice President
Nuclear Generation

jgt/Attachments
U.S. NRC

xc: S.D. Ebeneter, Regional Administrator
U.S. Nuclear Regulatory Commission - Region II
101 Marietta Street, NW - Suite 2900
Atlanta, Georgia 30323

V. Nerses, Project Manager
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Mail Stop 14H25, OWFN
Washington, D.C. 20555

G.F. Maxwell
Senior Resident Inspector
McGuire Nuclear Station

Dayne Brown, Chief
State of North Carolina
Division of Radiation Protection
P.O. Box 27687
Raleigh, N.C. 27611-7687

M. S. Tuckman, being duly sworn, states that he is Senior Vice President of Duke Power Company; that he is authorized on the part of said Company to sign and file with the Nuclear Regulatory Commission this revision to the McGuire Nuclear Station Facility Operating Licenses NPF-9 and NPF-17; and that all the statements and matter set forth herein are true and correct to the best of his knowledge.

M. S. Tuckman

M. S. Tuckman, Senior Vice President

Subscribed and sworn to before me this 24th day of June, 1994

Mary P. Helms

Notary Public

My Commission Expires:

JAN 22, 1996

ATTACHMENT I
PROPOSED TECHNICAL SPECIFICATION CHANGES

This section contains the proposed modifications to the MNS Technical Specifications. In general, these changes increase the initial fuel enrichment limit and establish several restricted loading patterns, and associated burnup criteria, for both regions of the McGuire Spent Fuel Pools. These changes are necessary to improve core reload designs and increase operational flexibility, while at the same time maintaining acceptable criticality safety margin. In addition, several administrative changes have been included in order to provide clarity to the Specifications and bring them more in line with STS format. A description of each of the changes being requested is given below.

The accompanying FSAR changes will be incorporated at the next annual revision following approval of this submittal. These changes are identified and discussed in Section VIII of Attachment IV.

1. The Technical Specification Index is being changed to incorporate the changes being made to Specifications 3/4.9.12 , add Specification 3/4.9.13 and also the accompanying Tables 3.9-1 to 3.9-5, and Figures 3.9-1 to 3.9-3. This change is purely administrative in nature.

2. Specification 3/4.9.12, Spent Fuel Pool (SFP) Storage is being deleted and is being replaced with Specifications 3/4.9.12, Spent Fuel Pool Boron Concentration, and 3/4.9.13, Spent Fuel Assembly Storage. The Specification is being changed to separate SFP boron concentration limits from fuel storage requirements, as well as to establish one LCO for SFP boron concentration. These changes are being made in order to accommodate the more complex SFP storage requirements and provide clarity to these Specifications. The changes also provide more consistency with STS format.

a. Spent Fuel Pool Boron Concentration Limit in Specification 3/4.9.12 is being changed to allow this limit to be established in the COLR. This change is being requested to eliminate the potential for a dilution event by establishing this limit in the COLR. Limits for all other potential sources of borated water to the SFP are also established in the COLR. It also provides consistency with other operational, cycle specific limits. This change will significantly increase operational flexibility while at the same time ensuring acceptable criticality safety margin is maintained.

b. The action statement in Specification 3.9.12 (a) is being changed to better reflect appropriate actions necessary if the SFP Boron Concentration is out of limit. This change is administrative however, it better ensures acceptable criticality safety margin is maintained.

c. The surveillance requirement 4.9.12 is being changed to reflect the new LCO for SFP Boron Concentration.

d. Specification 3/4.9.13, accompanying Tables 3.9-1 to 3.9-5, and Figures 3.9-1 to 3.9-3, are being added to establish several restricted loading patterns (with appropriate interface restrictions) for spent fuel storage and associated burnup criteria. The proposed changes are necessary to increase the efficiency of fuel storage while at the same time ensuring that acceptable criticality safety margin is maintained. The format of these

changes is also more in line with STS format. The technical basis for these changes and the associated criticality analysis are described in detail in Attachment IV.

e. The action statement in Specification 3.9.13 (a) is being changed to more accurately describe appropriate actions if a fuel assembly is misplaced. This change is administrative however, it better ensures that appropriate corrective actions are taken.

f. Surveillance requirement 4.9.13 is being changed to reflect the new fuel storage requirements and provide clarity to this surveillance requirement.

3. The BASES for Sections 3/4.9.12 and 3/4.9.13 of the Technical Specifications has been changed to reflect the changes made in the corresponding Specifications and to more fully explain the basis for each LCO, Action Statement and Surveillance Requirement covered by these Specifications. Paragraph 3 of the BASES has also been changed to explain the acceptability of using less reactive fuel components or non-fuel components in designated fuel assembly locations and non-fuel components in empty cell locations, as this would ensure the reactivity limits are met while increasing operational flexibility. In addition, the last paragraph specifies the limit for maximum fuel enrichment, 4.75 weight %, as the basis for all fuel storage requirements imposed by Technical Specification 3/4.9.13 and to describe appropriate methods for interpolating the data provided in Tables 3.9-1 to 3.9-5. The proposed modifications to the BASES Section are also more consistent with those in STS.

4. Technical Specification 5.6, Fuel Storage, has been changed to reflect appropriate limits, as determined by criticality analysis for fuel storage. In addition, the Specification has been changed to remove extraneous information on rack design and relocate the specification of enrichment limits. These changes allow increased operational flexibility, while maintaining acceptable criticality safety margin, and bring these Specifications in line with STS format.

a. Specification 5.6.1 has been changed to allow for use of $k_{eff} \leq 0.98$ under optimum moderation conditions in the rack design criteria for new fuel storage racks. Actual calculations have shown that $k_{eff} \leq 0.95$, under all storage conditions however, this change allows increased flexibility when performing criticality analyses and is consistent with the criteria currently specified in ANSI-ANS57.3, 1983 and STS.

b. Specification 5.6.1 has also been changed to eliminate information on rack design. This information is currently discussed in the FSAR and is considered in the criticality analyses.

c. Specification 5.6.3 has been changed to eliminate reference to the fuel enrichment limit. This limit has been specified in the BASES for Technical Specification 3.9.13. This change establishes a more appropriate basis for fuel storage rack design, i.e. criticality and maintains consistency with changes to Specification 5.3.1, established in Amendments 137 and 119 for Units 1 and 2, respectively. These changes are also more consistent with STS format.