DUKE POWER COMPANY
P.O. BOX 33189
CHARLOTTE, N.C. 28242

HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

TELEPHONE
(704) 373-4531

June 14, 1984

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Ms. E. G. Adensam, Chief
Licensing Branch No. 4

Subject: McGuire Nuclear Station
Docket Nos. 50-369 and 50-370
Base Load Operation Technical Specifications

Dear Mr. Denton:

Attached are proposed license amendments to Facility Operating Licenses NPF-9 and NPF-17 for McGuire Nuclear Station Units 1 and 2, respectively. The proposed amendments would expand the Power Distribution Limits section of the McGuire Unit 1 Technical Specifications to include Base Load Operation in addition to the currently approved RAOC operation. Base Load Operation is defined as operation within a ±3 percent AFD band about a measured target in a power range to be specified in the Peaking Factor Limit Report. Concurrent with the expansion of the Power Distribution Limits section to include both RAOC and Base Load Operation, changes to the corresponding Bases and administrative sections of the specifications are also proposed.

Attachment 1 contains the proposed Technical Specification changes, and Attachment 2 discusses the Justification and Safety Analysis to support the proposed changes. Included in Attachment 2 (Attachment 2A) is the amended McGuire Unit 1/Cycle 2 Peaking Factor Limit Report which is provided in accordance with the proposed McGuire Unit 1 Technical Specification paragraph 6.9.1.9 as given in Attachment 1. Pursuant to 10 CFR 50.91, Attachment 3 provides an analysis performed in accordance with the standards contained in 10 CFR 50.92 which concludes that the proposed amendments do not involve a significant hazards consideration. The proposed amendments have been reviewed and have been determined to have no adverse safety or environmental impact.

It is requested that the proposed amendments receive timely review and approval and be made immediately effective as emergency license amendments pursuant to 10 CFR 50.91(a)(5). McGuire Unit 1 is currently derated to 95% Rated Thermal Power (RTP) because of a quadrant power tilt and in-out shift in core power distribution which has been experienced since Cycle 2 start-up, forcing a reduction in the RAOC limits such that the unit is effectively restricted to 95% RTP. Design predictions indicate that no improvement is expected within at least the next thirty to sixty effective full power days (EFPD), and in fact, further reduction in reactor power level is possible. Under the proposed amendments, operation at 100% RTP would be allowed.

A001
1/32

Duke Power could not have avoided this situation and has not delayed this application to take advantage of the Emergency License Amendment provision of 10 CFR 50.91. A quadrant power tilt of this magnitude was not predicted by Cycle 2 analyses and no cause for the tilt has yet been identified. The McGuire Unit 1 Cycle 2 zero power physics testing was performed April 27 through May 4, 1984, during which a quadrant power tilt was identified. All zero power physics parameters met acceptance criteria except the all rods out hot zero power critical boron concentration and the radial power distribution. A review of the hot zero power results was performed by Westinghouse, and power escalation was performed consistent with the Westinghouse position statement on core tilt. At 100% full power the measured incore quadrant power tilt decreased and the measured power distribution met acceptance criteria, although the power in the peripheral fuel assemblies remained higher than predicted. On June 6, 1984 the transient adjusted LOCA peaking factor was determined to exceed its limit, forcing the reduction in the RAOC limits. Consequently, Duke Power Company has not created the situation to take advantage of the emergency provision. Failure to grant the requested change will involve the derating of McGuire Unit 1 by forcing the unit to adhere to the RAOC limits, with further derating possible without the new specification.

The McGuire 1 Cycle 2 Peaking Factor Limit Report format and content have been amended to provide information which permits the exact determination of W(z) versus core height as a function of cycle burnup through the use of three point interpolation of three sets of burnup specific data. The report (ref. Attachment 2A) transmits the elevation dependent W(z) values that are to be used as inputs to define the appropriate fitting coefficients for W(z) interpolations to be performed as a function of cycle burnup and axial elevation for RAOC operation during Cycle 2 and Base Load Operation in the Cycle 2 burnup range of 1200 to 6000 MWD/MTU. Note that the basic RAOC W(z) data is unchanged from the previous report. The base load information was derived for Base Load Operation with a ±3 percent AFD about a measured target in the power interval from 80% to 100% of rated thermal power. The Base Load W(z) functions for the remainder of Cycle 2 (burnups greater then 6000 MWD/MTU) will be submitted in early July 1984. In view of the fact that the proposed amendments have been requested to be made immediately effective as Emergency License Amendments, an exemption from the provisions in the proposed Radial Peaking Factor Limit Report Technical Specification (T.S.6.9.1.9 of Attachment 1) requiring submittal of the values 60 days prior to the date the values would become effective is necessary.

Pursuant to 10 CFR 170.22, Duke Power proposes that this application contains one Class III license amendment for McGuire Unit 1 and one Class I amendment for McGuire Unit 2. Therefore, a check in the amount of $4,400 will be forwarded separately in accordance with 10 CFR 170.12.

The concept of a Base Load Power Distribution Limits Technical Specification has previously been presented to the NRC. On February 25, 1981 a meeting was held between Westinghouse and the NRC (attended by Messrs. S. Miner and M. S. Dunenfeld of your staff) in which a Base Load $F_Q(z)$ Technical Specification for D. C. Cook Unit 2 was discussed. Also, although significantly different, a Base Load Technical Specification was reviewed and approved (March 17, 1982) for Florida Power and Light's Turkey Point Units 3 and 4 (Docket Nos. 50-250 and 50-251; Amendment Nos. 80 and 74 to Operating Licenses DPR-31 and DPR-41, respectively).

In addition, the "Statistical Evaluation of LOCA Heat Source Uncertainty," Topical Report, WCAP-10395, which was submitted to the NRC (ref. Westinghouse Letter No. NS-EPR-2885, E. P. Rahe to C. O. Thomas, dated February 21, 1984) and subsequently discussed in a meeting held February 22, 1984, contains sections dealing with Base Load Operation.

We will be pleased to meet with the NRC staff to discuss this matter at the staff's convenience.

Very truly yours,

Hal B. Tucker

PBN/php

Attachments

cc: (w/attachments)
Mr. James P. O'Reilly, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Mr. Dayne Brown, Chief
Radiation Protection Branch
Division of Facility Services
Department of Human Resources
P. O. Box 12200
Raleigh, North Carolina 27605

Mr. W. T. Orders
Senior Resident Inspector
McGuire Nuclear Station

HAL B. TUCKER, being duly sworn, states that he is 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 License Nos. NPF-9 and NPF-17 and that all statements and matters set forth therein are true and correct to the best of his knowledge.

Hal B. Tucker, Vice President

Subscribed and sworn to before me this 14th day of June, 1984.

Notary Public

My Commission Expires:

September 20, 1984