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February 16, 1987

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

Subject: McGuire Nuclear Station
Docket Nos. 50-369/370
Startup Physics Testing
(Rod Worth Measurement)

Gentlemen:

Duke Power Company has reviewed Darl Hood's letter dated January 13, 1987, and offers the following comments.

The letter focuses on the 14.5% discrepancy between the predicted and measured worths of the reference bank of McGuire Unit 2 Cycle 3. The cause of the discrepancy is attributed in the letter to shortcomings in measurement technique. Other possible causes, such as a deficiency in the prediction, are not addressed.

The letter places undue significance on the effects of Duke's "failure to adhere to the procedures" of WCAP-9863-A in that a boron dilution rate of 700 pcm/hr was used rather than a recommended rate of 300-500 pcm/hr, and that the flux rate during reference bank testing was higher than usual. Neither effect was quantified in the letter. During discussions between Duke and NRC (Region II) inspectors, it was agreed that the effects of these anomalies were probably not significant; a conclusion which Westinghouse concurred with. It was further noted in the discussions that according to Westinghouse, a significant contribution to the discrepancy was the use of vendor-supplied kinetics parameters which had been generated using an old methodology. The Region II staff appeared satisfied by the explanation and closed the inspection item. In addition, it should be noted that prediction-to-measurement errors of similar magnitude were observed in McGuire Unit 1 Cycle 2 (9.2%) and Unit 1 Cycle 3 (12.5%) both of which were performed within the recommended dilution rate of 300-500 pcm/hr. This further supports the position that the measurement procedure anomalies cited in the January 13, 1986, letter were not the root cause of the error.

It should be further noted that Duke predictions of rod worth for McGuire Unit 2 Cycle 3 agreed more closely with the measured values, and if used would not have resulted in the review criteria being exceeded.

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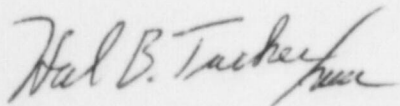
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The procedure by which rod worths are measured will be revised to emphasize the recommended (300-500 pcm/hr) dilution rate and flux level. The use of the rod swap technique will then be in conformance with the provisions of WCAP-9863-A and will continue to be used by Duke for rod worth measurement testing.

A topical report which describes Duke Power's Rod Swap Methodology has been submitted by Duke (reference: DPC-NE-1003, Revision 1, December 1986) and is under review by the NRC Staff. When this topical is approved, it will be used by Duke to perform rod worth predictions in future physics testing of Duke's Westinghouse-designed reactors.

If any additional discussion of this issue is desired, contact Duke through normal Licensing channels.

Very truly yours,



Hal B. Tucker

SAG/55/jgm

Attachment

xc: Mr. Darl Hood, Project Director
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U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dr. J. Nelson Grace, Regional Administrator
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Mr. W.T. Orders
NRC Resident Inspector
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