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**DUKE POWER**

December 4, 1995

U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Attention: Document Control Desk

Subject: McGuire Nuclear Station  
Docket Numbers 50-369 and -370  
Catawba Nuclear Station  
Docket Numbers 50-413 and -414  
Duke Use of the BWU-Z Critical Heat Flux Correlation

References:

1. Letter from M.S. Tuckman to Document Control Desk, Duke Use of the BWU-Z Critical Heat Flux Correlation, October 13, 1995.
2. BAW-10199, The BWU Critical Heat Flux Correlations, BWFC, submitted November 1994,
3. DPC-NE-2004P-A, Duke Power Company McGuire and Catawba Nuclear Stations Core Thermal-Hydraulic Methodology Using VIPRE-01, December 1991.
4. DPC-NE-2005P-A, Duke Power Company Thermal-Hydraulic Statistical Core Design Methodology, February 1995.
5. NRC letter from Herbert N. Berkow to M.S. Tuckman, Duke Power Company's Use Of TACO-3 And The Fuel Rod Gas Pressure Criterion For The Oconee, McGuire, and Catawba Nuclear Stations, April 3, 1995.
6. NRC letter from Herbert N. Berkow to M.S. Tuckman, Duke Power Company Use Of CROV Computer Code, June 19, 1995.

Duke notified the NRC (Reference 1) of intent to use the BWU-Z critical heat flux (CHF) correlation for licensing and analyses of the Catawba 2 Cycle 9 core. This approach is tied to the NRC review and approval of the BWU correlation (Reference 2). This approach also involves a licensing process discussed in several meetings with the NRC. In a

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telephone conversation on November 20, 1995, the NRC requested clarification on some of the issues relating to the application of Reference 2 at Duke.

Reference 1 cited the BWU-Z correlation in particular as the correlation required for the Catawba 2 Cycle 9 analyses. The BWU-Z designation is in reference to the correlation in the BWU form with specific coefficients applicable only to the Mark-BW 17x17 fuel type. Reference 2 contains documentation to verify the acceptability of a universal local conditions CHF correlation form as well as specific information for three different fuel designs to which this form is applicable (Reference 2, Page 1-3). As noted on pages 4-3 and 4-4 of Reference 2, the BWU-Z correlation is applicable only to the Mark-BW 17x17 design. Two other applications of the universal correlation are described in Reference 2 and denoted as BWU-I and BWU-N. These two forms apply to different fuel designs, and have different coefficients and applicable data ranges. Duke intends to use only the BWU-Z with the same coefficients and within the BWU-Z range of applicability listed in Table 4-1, page 4-5, of Reference 2.

The BWU-Z form of the BWU correlation used by Duke in analyses for McGuire and Catawba is exactly the same as the correlation represented in Reference 2. The BWU-Z correlation is transferred to the VIPRE-01 computer code and confirmed to be applicable according to the method described for the BWCMV correlation in Reference 3. Following confirmation, the statistical design limit for the BWU-Z form of the BWU correlation for Mark-BW 17x17 fuel at McGuire and Catawba is calculated as described in Reference 4. These two steps have been completed.

Duke is pursuing the application of the BWU-Z form of the BWU correlation to Catawba 2 Cycle 9 as a Cost Beneficial Licensing Action. The BWU-Z correlation conservatively accounts for the enhanced thermal performance of the Mark-BW fuel assembly design compared to previous 17X17 mixing vane fuel designs. The better thermal performance of the fuel can be translated into changes in core loading schemes that will save \$500,000 per fuel cycle. This cost savings can only be realized when the approval for the analyses methods detailed in the Reference 1 letter is received.

As stated in Reference 1, the BWU-Z form of the BWU correlation will be applied with approved Duke methods (Reference 4). No modification to existing NRC-approved methods nor use of non-NRC approved methods is proposed. NRC approval of Duke's use of BWU-Z by the process outlined in Reference 1 is consistent with methods discussed in an August 15, 1995 meeting between the NRC and Duke, and processes previously used by NRC to approve Duke methods without formal topical report submittal (References 6 and 7).

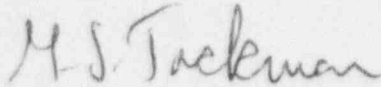
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If any additional assistance is required relating to the issue of using the BWU-Z correlation or the licensing approach proposed for approval at Duke, please feel free to contact Mr. Ronald Gribble at (704) 382-6160.

Very truly yours,



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