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July 2, 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

Re: McGuire Nuclear Station
Docket Nos. 50-369, 50-370

Dear Mr. Denton:

Please find attached additional information concerning the McGuire Nuclear Station spent fuel pool two region rerack modifications. This additional information was requested during the June 26, 1984 Pensacola meeting between Westinghouse, NRC, Franklin Research Center and Duke Power and concerns the structural evaluation which is being performed by Franklin Research Center. If there are further questions regarding this matter, please contact us as soon as possible in order to prevent delays in the August 1, 1984 licensing approval date.

Very truly yours,

Hal B. Tucker

Hal B. Tucker

WHM:glb

cc: Mr. J. P. O'Reilly, Regional Administrator
U. S. Nuclear REgulatory Commission
Suite 2900
101 Marietta Street, NW
Atlanta, Georgia 30323

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

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DUKE POWER COMPANY
McGUIRE NUCLEAR STATION
Spent Fuel Pool Rerack Modifications
Additional Information

1. In response to your request for documentation supporting the rerack specification limit on the fuel assembly damping factor of 15% for the B&W fuel, a telecon was made with Babcock and Wilcox on June 26. Mr. R. J. Walker of B&W was able to determine that the allowable fuel assembly damping factor for B&W fuel is 10-15%. This information is contained in B&W Lynchburg Research Center report #LR:79:2560-75:01 dated September 11, 1979. A review of this report can be arranged through Mr. Walker; however, it was made clear that this document could not be released from B&W.

2. With regard to the models used for structural analysis of the rack modules the following additional information is offered:

   The seismic analysis is performed using a combination of 2-D nonlinear and 3-D linear models. The nonlinear model is a two-dimensional representation of the fuel rack which is excited by acceleration time-history values from the vertical and one horizontal direction. This model produces the maximum dynamic responses of the fuel rack due to the seismic events calculated independently.

   The three-dimensional linear model represents the structure of the spent fuel rack module. The response values from the 2-D nonlinear model are applied to the 3-D linear model to obtain the distribution of loads and stresses within the fuel rack structure. This method produces maximum values of a particular response of interest (stress, load or displacement) on a given element of the structure when subjected to each of the three directional earthquake events independently. The maximum value of response due to the simulataneous action of the three earthquake events is then obtained by taking the square root of the sum of the squares of these maximum response values from the independent time-history analyses.

   The above methodology has its origin in the requirements of Regulatory Guide 1.92; therefore, it has been used as a design basis for all nuclear equipment, including fuel racks, for many years. The McGuire fuel rack design presented for NRC approval is in compliance with all applicable NRC requirements, including the NRC position paper "OI Position for Review and Acceptance of Spent Fuel Storage and Handling Applications".