D. Powers
Reading

JUN 12 1978

Mr. James H. Taylor
Manager, Licensing
Nuclear Power Generation Division
Babcock & Wilcox Company
P.O. Box 1260
Lynchburg, Virginia 24505

Dear Mr. Taylor:

Our review of generic rod bowing models (such as that described in your letter report of September 1976 entitled "Fuel Rod Bow Projection") has been delayed because of conceptual differences in vendor models being received at the NRC and because of the need for an equitable treatment throughout the industry. The major difficulty has been related to converting measured values of channel spacing into values suitable for use in analysis. Since there is a lot of variability and randomness in the occurrence of rod bowing, statistical methods must be used. Those vendors who have data from many plants on the same fuel design recognize a batch-to-batch variation as a source of uncertainty and treat the data accordingly while those vendors who have limited data on a particular fuel design do not realize this source of variation. The difference is substantial.

Additional difficulty has been experienced in quantifying the effect of rod bowing on critical heat flux. Consequently substantial effort has been given to improving methods for the analysis of bow magnitudes and CHF effects, and guidelines for these analyses are presented in Enclosure 1.

Presently your rod bowing model does not cover the elements described in Enclosure 1, and we find that the depth of coverage in your model is deficient in several other respects: (a) there is virtually no detailed information on the bowing data, and (b) there is no discussion on the effects of fuel rod bowing on DNB and physics parameters. Therefore, we are discontinuing our review of your rod bow submittal and request that B&W submit a formal topical report that adequately treats the subject. Enclosure 2 to this letter provides a suggested outline for that report.

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Upon receipt of a formal commitment to submit such a topical report, B&W may use the procedure in Enclosure 1 as an interim method of calculating the effect of rod bowing on CHF with input data and correlations acceptable to the staff.

Please contact us if you have any further questions on this matter.

Sincerely,

Original signed by
D. B. Vassallo

D. B. Vassallo, Assistant Director
for Light Water Reactors
Division of Project Management
Office of Nuclear Reactor Regulation

Enclosures:
As stated

cc: Mr. Robert B. Borsum
7735 Old Georgetown Road
Bethesda, MD 20014

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