BALTIMORE GAS AND ELECTRIC COMPANY

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ARTHUR E. LUNDVALL, JR.
VICE PRESIDENT
SUPPLY

November 28, 1980

Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

ATTENTION: Mr. R. A. Clark, Chief
Operating Reactors Branch #3
Division of Licensing

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit No. 1, Docket No. 50-317
Amendment to Operating License DPR-53
Fifth Cycle License Application
Responses to NRC Staff Questions

Gentlemen:

Enclosed are our reponses to questions posed by NRC staff on the subject application.

Very truly yours,

BALTIMORE GAS AND ELECTRIC COMPANY

A. E. Lundvall, Jr.
Vice President - Supply

AEL/WJL/mit

Copy To: J. A. Biddison, Esquire (w/out Encl.)
G. F. Trowbridge, Esquire (w/out Encl.)
Messrs. E. L. Conner, Jr., NRC
P. W. Kruse, CE

Enclosure (40 copies)

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ENCLOSURE

QUESTION

The reload safety analysis (1) provides an insufficient discussion on fuel rod bowing and its effect on DNBR margin. The two sentences that are provided do not identify the bow-magnitude and reduction-in-DNBR correlations used for the Calvert Cliffs Unit 1 analysis. Neither is there any information given on the input parameters used for the calculations. Furthermore, the BG&E discussion of fuel rod bowing references the Combustion Engineering generic topical report CENPD-225, "Fuel & Poison Rod Bowing" that has not been approved for licensing applications.

Please identify the correlations that were used and cite their NRC approval. Provide the input that was used for the Cycle 5 analysis. Describe any generic or plant specific DNBR margins that were required to offset fuel rod bowing effects.

RESPONSE

The following supplements our response (Reference 1) to the above question as per our discussion with D. H. Powers on November 25, 1980:

The fuel rod bowing effects on DNB margin for Calvert Cliffs Unit 1 have been evaluated within the guidelines set forth in Reference 2.

A total of 63 fuel assemblies will exceed the NRC-specified DNB penalty threshold burnup of 24,000 MWD/T, as established in Reference 2, during Cycle 5. At the end of Cycle 5, the maximum burnup attained by any of these assemblies will be 42,700 MWD/T. From Reference 2, the corresponding DNB penalty for 42,700 MWD/T is 6.2 percent.

An examination of power distributions for Cycle 5 shows that there exists at least 15.3 percent DNB margin for assemblies exceeding 24,000 MWD/T relative to the DNB limits established by other assemblies in the core. This margin is considerably greater than the Reference 2 reduction penalty of 6.2 percent imposed upon fuel assemblies exceeding 24,000 MWD/T in Cycle 5. Therefore, no power penalty for fuel rod bowing is required in Cycle 5.

REFERENCES

1. Letter A. E. Lundvall to R. A. Clark, November 20, 1980, "Fifth Cycle License Application. Response to NRC Staff Questions."

2. "The interim SER on Effects of Fuel Rod Bowing in Thermal Margin Calculations for Light Water Reactors", Rev. 1, February 16, 1977.