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TLL 015

Darrell G. Eisenhut, Acting Director
Division of Operating Reactor
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

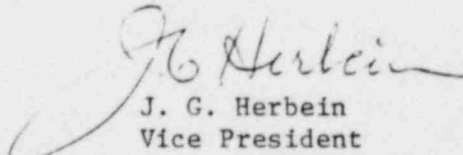
Dear Sir:

Three Mile Island Nuclear Station, Units I & II (TMI-1 & TMI-2)
License Nos. DPR-50 & DPR-73
Docket Nos. 50-289 & 50-320
Fuel Cladding Swelling & Rupture

This letter and the attached evaluation is in response to your letter of November 9, 1979, addressing portions of ECCS evaluation models dealing with fuel cladding swelling and incidence of rupture.

We have reviewed the available material and have concluded that the representations made by Babcock and Wilcox in our behalf are correct. The attached evaluation provides the details of our review.

Sincerely,


J. G. Herbein
Vice President
Nuclear Operations

JGH:CFM:hah

Attachment

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METROPOLITAN EDISON COMPANY
JERSEY CENTRAL POWER & LIGHT COMPANY
AND
PENNSYLVANIA ELECTRIC COMPANY
THREE MILE ISLAND NUCLEAR STATION, UNITS I & II

Operating License Nos. DPR-50 and DPR-73
Docket Nos. 50-289 and 50-320

This letter is submitted in support of the Nuclear Regulatory Commission request concerning portions of ECCS evaluation models dealing with fuel cladding swelling and incidence of rupture, dated November 9, 1979 for Three Mile Island Nuclear Station, Units I & II. As part of this response an "Evaluation of NRC Clad Swelling Concerns" is attached. Further, all statements contained in this report have been reviewed and all such statements made and matters set forth therein are true and correct to the best of my knowledge, information and belief.

METROPOLITAN EDISON COMPANY

By 

Vice President

Sworn and subscribed to me this 9th day of January, 1980.

By 

Notary Public

An Evaluation of NRC Clad Swelling Concerns

In response to Reference 1 GPUSC/MetEd has reviewed the information on fuel cladding swelling and rupture models for LOCA analysis. Both the Staff Analyses and the corresponding B&W responses to NRC concerns (Reference 2 through 5) have been considered. Based upon our review we concur with the B&W conclusion that the new NRC cladding data do not change the results of previously completed safety analyses for both TMI-I and TMI-II, and that no further analyses are necessary.

This conclusion is based on the following:

- (1) As demonstrated in Reference 2, the approved B&W evaluation model is in conformance with Appendix K, 10CFR50 in that the present clad strain and assembly blockage models are based on applicable data and do not under-estimate the degree of swelling and incidence of rupture. The models are fully applicable to TMI-I and II.
- (2) ECCS calculations utilizing the presently-approved models demonstrate that the peak cladding temperature (2200^oF) and other criteria of 10CFR50.46 are not exceeded for either TMI-I or TMI-II (Reference 2).
- (3) There are specific instances where the preliminary NRC models appear to be more conservative than the B&W models over limited ranges (e.g., individual pin strain). However, the B&W model for large breaks overpredicts both the incidence of rupture and the degree of flow blockage as compared to the NRC fast ramp curves. The B&W small break model does not predict significant cladding heatup and, therefore, swelling and flow blockage are not of concern for small breaks. (Reference 2 and 3)

- (4) Furthermore, incorporation of the NRC ramp heatup, clad strain, and flow blockage models in the B&W ECCS evaluation model, as applicable to TMI-I and II, would not result in violation of the 10CFR50.46 PCT or other criteria (References 2, 3, 4).

In summary, our review concludes that the information presented to the Commission regarding the presently-approved B&W ECCS evaluation model, including clad strain and assembly flow blockage models, is correct and applicable to both TMI-I and TMI-II. The evaluation model is in compliance with the requirements of Appendix K and the limits of 10CFR50.46, even utilizing the new NRC models. Further, GPUSC/MetEd concurs with the B&W opinion that no model changes or further analyses are appropriate or necessary as a result of the information presented in the NUREG-0630 draft.

References:

1. Letter, NRC (D. G. Eisenhut) to All Operating Light Water Reactors, dated November 9, 1979.
2. Letter, B&W (J. H. Taylor) to NRC (D. G. Eisenhut), dated November 2, 1979.
3. Letter, B&W (J. H. Taylor) to NRC (D. G. Eisenhut), on B&W Cladding Rupture Model for LOCA Analyses, dated November 9, 1979.
4. Letter, B&W (J. H. Taylor) to NRC (D. G. Eisenhut), on same subject, dated November 20, 1979.
5. Letter, B&W (J. H. Taylor) to NRC (R. P. Denise), dated December 10, 1979.