EXHIBIT II

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PROJECTS DIVISION

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

Attention: Frank Schroeder, Acting Director
Division of Systems Safety

Gentlemen:

SUBJECT: ADDITIONAL TLTA INFORMATION

Reference:
1) G. G. Sherwood letter to Frank Schroeder, dated 6/15/79, "Two Loop Test Apparatus (TLTA) Results"
2) R. H. Buchholz letter to Frank Schroeder, dated 7/13/79, "Leibnitz Rule in LOCA Models"

Attached herein is the additional TLTA information requested by NRC during the May 24, 1979 meeting and committed by General Electric in Reference 1. Also included are additional model comparisons as requested by the NRC staff. The requested information is provided in eight attachments which are summarized below for your convenience.

1. A Writeup to Support the May 24 Slides

Attachment 1 is a summary of the May 24 meeting slides which presented the results of the recent TLTA tests. The relevant phenomena controlling the TLTA thermal hydraulic and bundle heatup response are identified and discussed. Comparisons of test results with and without Emergency Core Cooling (ECC) injection and a summary of the peak and low bundle power tests are also provided.

2. Steam Separator ΔP and Break Flow Discussion

Attachment 2 presents the results from the mass and energy balance obtained from the TLTA data for the tests with and without ECC injection. These results clearly show that for the test with ECC injection, more liquid was entrained out the break and the bulk discharged fluid quality was clearly lower. It is further concluded that fluid conditions discharged from the break led to the differences in depressurization rate observed between the two tests. Attachment 3 provides analysis of the steam separator pressure drop data. The

preliminary evaluation of the separator ΔP suggested that the steam flow through the separator was lower for the test with ECC injected. Results from Attachment 2 are utilized in Attachment 3 to further substantiate that the flow through the separator was indeed lower. Additional analysis to include the possible effects of liquid entrainment out the separator are also included to demonstrate that the conclusions remain unchanged.

3. TLTA Scaling Discussion

Attachment 4 summarizes the TLTA scaling basis and supporting analysis. It is demonstrated that the relevant BWR LOCA thermal hydraulic phenomena can be evaluated in the TLTA.

4. Vaporization Data Base

Attachment 5 provides further explanation of the facility and method used for the 1974 test which provided the data base for the vaporization correlation. Based on the recent results and data interpretation from the TLTA, it is concluded that the facility and system conditions in TLTA are similar to those of the 1974 vaporization tests.

5. Side Entry Orifice CCFL

Attachment 6 describes the conservatism resulting from not including Side Entry Orifice (SEO) Counter Current Flow Limiting (CCFL) in the General Electric evaluation model. It states that inclusion of SEO CCFL would result in core uncovery delay and earlier reflooding which would result in improved heat transfer and lower PCT's.

6. The Grid Spacer Water Accumulation

Attachment 7 provides a discussion of the CCFL characteristics across a bundle. It is concluded that, while there is a potential for water accumulation to exist momentarily when there is a sudden reduction in the bundle inlet flow (e.g., during the flow coastdown period or lower plenum flashing period), accumulation will not occur during the reflood period.

7. Justification of Conservatism of the Heat Transfer Coefficients Used in SAFE

The information provided in Attachment 6 demonstrates that the heat transfer coefficients used in the SAFE Computer Program between the nucleate boiling to the core spray cooling regimes are the appropriate values.

8. Discussion of Plant Choice For Leibnitz Rule Study

Response to this item was forwarded under separate cover by Reference 2.

9. Additional Evaluation of Model Comparisons

Attachment 8 provides additional evaluation model comparisons of the TLTA tests with and without ECC injection. The comparisons show that the system is calculated to blowdown faster than measured due primarily to an overestimation of the break flow during the early period of the transient.

The information provided here closes out all the TLTA commitments made in Reference 1 and during discussions with the NRC staff. If further clarification is required, please contact R. N. Woldstad at (408) 925-2539 or L. F. Rodriguez at (408) 925-2460.

Very truly yours,

R. H. Buchholz, Manager
BWR Systems Licensing
Safety and Licensing Operation

RHB:gmm/421-423

Attachments

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