



Westinghouse
Electric Corporation

Water Reactor
Divisions

PWR Systems Division

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August 2, 1979

Mr. R. P. Denise
Acting Assistant Director for
Reactor Safety
Division of Systems Safety
Office of Nuclear Reactor Regulation
7920 Norfolk Avenue
Bethesda, Maryland

Dear Mr. Denise:

Westinghouse has participated extensively in technical discussions regarding the Semi-scale test program. As a result of our voluntary participation in the Standard Problem program, we have also provided computer simulations of selected Semi-scale tests. We have carefully reviewed the Semi-scale design and on a number of occasions have provided detailed comments on the capability of the system to represent PWR LOCA transients. As part of our assessment of Semi-scale's applicability, we have identified a number of features which are considered atypical of a PWR. One which we assessed as particularly significant was the potential for excessive metal heat release.

We have also participated in specific discussions of the downcomer voiding behavior observed in test S-07-6. There was consensus by all involved in these discussions that excessive downcomer metal heat release was a major cause for the voiding. Since S-07-6 test was clearly distorted by atypical conditions, the staff at the time established a carefully considered program for resolving the issue. The TRAC code was to be utilized to model the semi-scale facility and to calculate the behavior observed in S-07-6. A similar calculation was then to be performed for representative PWR reflood conditions. The two calculations were then to be used to assess the applicability of the S-07-6 results to prototypic PWR's.

We consider the above approach to the S-07-6 issue very prudent. It was intended to resolve the atypicality prior to requiring that considerable resources be committed to study the phenomena in PWR's. You and your staff have concluded that it is now necessary for Westinghouse to demonstrate that our LOCA models are adequate in light of the S-07-6 phenomena. If this decision is based upon the results of the calculations described above or the results of other calculations, we would consider it very useful if these results could be made available.

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The potential for voiding in the downcomer during reflood has already been considered by us as part of the Appendix K model development. The results of this study demonstrated that saturation conditions would not be achieved in the downcomer until the reflood transient had been completed. This study is referenced in WCAP-8471.

In response to your request, we will again review our LOCA models to assess the potential for downcomer voiding. The review will include the application of the most appropriate two phase flow correlations to evaluate the extent of voiding that could be achieved in a PWR downcomer. The review will also include a re-examination of the assumptions and initial conditions applied to the reflood calculation. These will be evaluated in terms of the potential for more rapid heating of the downcomer water but also in terms of the overall conservatism associated with these assumptions and conditions. All this will be accomplished in a timely manner. We propose to complete our review by the end of December 1979. We would be prepared, however, to discuss the review with you and your staff as the results become available.

Very truly yours,

WESTINGHOUSE ELECTRIC CORPORATION



T. M. Anderson, Manager
Nuclear Safety Department