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U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

ATTENTION: MR. T. R. QUAY

SUBJECT: AP600 CONTAINMENT ANALYSIS FOR LOCA BLOWDOWN

Dear Mr. Quay:

During the July 27, 1995, meeting between Westinghouse and the Containment Systems and Severe Accident Branch, Westinghouse took an action to provide a comparison between the WGOTHIC containment integrity analysis model and a more traditional "few node style" analysis during the initial blowdown portion of the containment response analysis. Attachment 1 to this letter provides the requested comparison.

Please contact John C. Butler on (412) 374-5268 if you have any questions concerning this transmittal.

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/nja

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Attachment to NTD-NRC-95-4589

During the July 27, 1995, meeting between Westinghouse and the Containment Systems and Severe Accident Branch, Westinghouse took an action to provide a comparison between the WGOTHIC containment integrity analysis model and a more traditional "few node style" analysis during the initial blowdown portion of the containment response analysis. This comparison was performed and the results show that the containment pressure during the blowdown phase of the AP600 predicted using a "traditional" single node model are essentially the same as that obtained with the WGOTHIC code multi-node model.

The WGOTHIC case from the SSAR Section 6.2.1 Rev. 5 preliminary markups[1] (Double-Ended Cold Leg lumped parameter case) was used as the base case. The comparison case was developed from the SSAR analysis model with the following modifications:

- Multi-node model collapsed to a single node model.
- All of the climes were removed.
- All of the flow paths except for the two associated with the mass and energy release forcing functions were deleted.
- All control volumes which represent the outside containment regions were deleted.
- A single node containment control volume, containing all of the thermal conductors from the base case and the two mass and energy release forcing functions was created.
- A conductor representing the containment shell was added to the single node containment control volume.
- The Uchida heat transfer correlation with revaporization was used on the shell and conductors.

The blowdown phase pressure results for the single node analysis are compared in the figure below along with the SSAR containment pressure.

The conclusion of this analysis is that the single node analysis provides essentially the same results during the blowdown phase as the WGOTHIC analysis documented in the AP600 SSAR.

[1]Transmitted to the NRC via letter number NTD-NRC-95-4504