September 10, 2003

MEMORANDUM TO: Laura A. Dudes, Section Chief
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Division of Regulatory Improvement Programs, NRR

FROM: Joseph Colaccino, Senior Project Manager ***/RA/***
New Reactors Section
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SUBJECT: AUGUST 25, 2003, AP1000 TELEPHONE CONFERENCE CALL SUMMARY ON DRAFT SAFETY EVALUATION REPORT OPEN ITEMS 3.6.3.4-1 AND 3.6.3.4-2

On Monday, August 25, 2003, a telephone conference call was held with Westinghouse Electric Company (Westinghouse) representatives and Nuclear Regulatory Commission (NRC) staff to discuss AP1000 draft safety evaluation report open items (DSER OIs) 3.6.3.4-1 and 3.6.3.4-2. The call participants are listed in Attachment 1. A summary of the conference call is included below.

Westinghouse stated that they had completed a leak-before-break (LBB) assessment of all the LBB piping sub-systems. Westinghouse provided the NRC staff with a general overview of the process that they developed to perform the LBB assessment. They also discussed the preliminary results that they had obtained from this LBB assessment.

Westinghouse noted that bounding analysis curves (BACs) for every LBB sub-system are included in AP1000 design control document (DCD) Tier 2 Appendix 3B, Leak-Before-Break Evaluation of the AP1000 Piping. In addition, routing of AP1000 piping has not changed from the AP600 routing although the diameters of certain LBB piping sub-systems have increased. Westinghouse performed a comparison of AP600 and AP1000 seismic response spectra and developed scaling factors to estimate normal and maximum stresses for the AP1000 LBB piping systems. The estimated stresses were compared with the BACs provided in the DCD. If the adjusted results for a specific LBB sub-system were below the BAC provided in the DCD, the particular AP1000 piping sub-system was considered acceptable for application of LBB.

For the subsystems that were above their respective BACs, the material properties used in those BACs, which are based on ASME Code minimum material properties, were adjusted based on a review of material test reports. After this adjustment was performed, all but 3 of the remaining LBB sub-systems were determined to be acceptable based on this methodology. For the remaining sub-systems, Westinghouse suggested that the combined license (COL) holder could install a more sensitive leak detection system (0.25 vs. 0.50 gallons per minute). Using a more sensitive leak detection system still left one LBB sub-system (6 inch diameter pressurizer safety valve inlet piping) unacceptable using this methodology. Westinghouse evaluated the

feasibility of postulating a pipe break in this line and concluded that a pipe break did not effect pressurization of the associated compartments. Westinghouse stated that if in the final LBB analysis this sub-system cannot be qualified, pipe whip restraints can be specified for installation.

Westinghouse stated that this methodology is conservative and believes that when the final LBB evaluations are completed at the COL phase, all the piping sub-systems designated as LBB systems will be qualified without much difficulty. Westinghouse stated that they would like to have a meeting with the NRC to describe their LBB assessment approach in greater detail. The NRC staff agreed to have a meeting.

Subsequent to this phone call, the NRC staff developed specific questions that Westinghouse should address during the next meeting. These questions are documented below.

1) Why is the diameter ratio approach suitable for modeling flexibility?

2) What floor response spectra were used in this analysis? Will any changes in the structural design impact the floor response spectra used in this methodology and why?

3) Discuss further the use of material test reports to specify material properties above the ASME Code minimum. Please provide applicable test reports for review.

4) Please be prepared to provide information to the NRC staff such that they can walk through the analysis of a couple of LBB sub-systems during the upcoming meeting.

5) Provide information that the staff would need to review to approve use of a more sensitive leak detection system (0.25 v. 0.50 gpm), e.g., proposed DCD revisions and revised technical specifications.

6) For the one remaining system discussed above, please provide a more complete description of the effects of postulated pipe breaks on the design of the associated compartments, required pipe whip restraints, and equipment in those compartments such that the staff could approve this subsystem for pipe breaks, if necessary.

Docket No. 52-006

Attachments: As stated

cc w/atts: See next page

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AUGUST 25, 2003
AP1000 DSER OPEN ITEMS 3.6.3.4-1 AND 3.6.3.4-2
TELEPHONE CONFERENCE CALLS SUMMARY
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Attachment 1

AP 1000

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