



UNITED STATES
NUCLEAR REGULATORY COMMISSION
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February 20, 1997

Mr. Nicholas J. Liparulo, Manager
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Nuclear and Advanced Technology Division
Westinghouse Electric Corporation
P.O. Box 355
Pittsburgh, PA 15230

SUBJECT: PIPING FUNCTIONAL CAPABILITY ISSUE FOR THE WESTINGHOUSE AP600
ADVANCED REACTOR DESIGN

Dear Mr. Liparulo:

In the AP600 Draft Safety Evaluation Report (DSER), NUREG-1512, dated November 1994, the staff provided you its review conclusion relative to the design criteria to be used to ensure the functional capability of piping. These criteria are necessary because the ASME Code, Section III does not address the functional capability of piping systems; rather, it addresses pressure boundary integrity. Functional capability of a piping system might be lost if, for example, displacements were large enough to "crimp" a pipe cross section and thus reduce the flow area while still maintaining the structural integrity of the pipe. As stated on the DSER, the use of the criteria in NUREG-1367, "Functional Capability of Piping Systems," dated November 1992 provides the staff assurance that the required flow area of the pipe will be maintained under design basis loads. Subsequent to the issuance of the DSER, there have been ongoing discussions between Westinghouse and the staff on this issue. However, as of Revision 10 to the standard safety analysis report (SSAR) Section 3.9, the Westinghouse position still does not meet the functionality criteria that the staff has established for all previous advanced design certification. Therefore, you are advised to revise the SSAR to reflect the following information:

The AP600 design for piping functional capability should implement the criteria in Section 9, "Conclusions" of NUREG-1367, with the following clarification:

When slug-flow loads are combined with other design basis loads, e.g., safe shutdown earthquake, pipe break loads, etc., then ASME Level D allowable stresses are acceptable for functional capability. When slug-flow loads are only combined with pressure, weight, and other sustained mechanical loads, then ASME Level C allowable stresses should be used, and the 0.25 Sy limit for steady-state loads does not apply. The 0.25 Sy limit applies for steady-state loads, which consist of pressure and dead weight loads only.

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Mr. Nicholas J. Liparulo

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February 20, 1997

If you have any question in this matter, you can contact Ms. Diane Jackson at (301) 415-8548.

Sincerely,

original signed by:

Thomas T. Martin, Director
Division of Reactor Program Management
Office of Nuclear Reactor Regulation

Docket No. 52-003

cc: See next page

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Docket No. 52-003
AP600

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