52-003

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

November 3, 1995

Mr. Nicholas J. Liparulo
Nuclear Safety and Regulatory Activities
Westinghouse Electric Corporation
P.O. Box 355
Pittsburgh, Pennsylvania 15230

SUBJECT: FOLLOWON QUESTIONS ON THE AP600

Dear Mr. Liparulo:

During meetings held on August 15 and 24, 1995, Westinghouse presented preliminary information regarding potential improvements to existing features and additional features that could reduce containment pressure and radioactive aerosol following a severe accident. Two of the four options considered were the primary focus of the presentation: fan coolers and a spray header. The following additional information is needed solely to assess whether the fan cooler option adequately addresses the staff's concerns regarding the ability of the design to cope with accidents beyond the design basis accident.

470.24 The evaluation results given in terms of effective containment pressure and radioactive aerosol reductions were predicated on a design basis accident (DBA) scenario; i.e., the first three of the NUREG-1465 five fission product release phases (coolant, gap, and early in-vessel). Westinghouse's evaluation should also address the ex-vessel and late in-vessel release phases, including non-condensable gas generation, to address severe accident concerns. Provide the results of such an evaluation that addresses these phases.

470.25 Provide the technical bases for the operability and aerosol removal efficiency of fan coolers. The background information is needed to assess (a) reliance on supporting systems, (b) the degree of effectiveness of removal, and (c) system performance degradation with radioactive and non-radioactive aerosol loading. Also, with two trains of fan coolers available, what are the maximum pressure and radioactive aerosol reduction benefits that can be derived? Provide justification for these values.

470.26 In order to assist the staff to better understand the risk reduction that could be achieved through the use of fan coolers, provide the following information: (a) the estimated availability of the fan coolers and support systems (chilled water, component cooling water, ac-power, etc.) in each of the major sequence categories for the AP600, (b) the fraction of core melt sequences where the fan coolers would be available (weighted over all sequences), and (c) the improvement in system availability and the reduction in total risk that would be achieved if the fan coolers and/or support systems were expanded to include availability/operation during severe accidents.

D803.10

470.27 Westinghouse's detailed scenarios were focussed on a natural aerosol deposition removal rate (lambda) of 0.5 hr^{-1}. Because of the uncertainties associated with aerosol removal, assessments of the fan cooler performance (removal of radioactive aerosol) should be made for a range of lambdas (0.15 to 0.5 hr^{-1}). Provide such assessments.

These followon questions affect nine or fewer respondents, and therefore are not subject to review by the Office of Management and Budget under P.L. 96-511.

We request that you respond to these questions within 60 days of the date of this letter. If you have any questions regarding this matter, you can contact me at (301) 504-1120.

Sincerely,

original signed by:

Thomas J. Kenyon, Project Manager
Standardization Project Directorate
Division of Reactor Program Management
Office of Nuclear Reactor Regulation

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cc: See next page

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Docket No. 52-003
AP600

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