UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D.C. 20555-0001

June 21, 2000

MEMORANDUM TO: William D. Travers
Executive Director for Operations

FROM: John T. Larkins, Executive Director
Advisory Committee on Reactor Safeguards

SUBJECT: AP1000 PRE-APPLICATION REVIEW

During the 473rd meeting of the Advisory Committee on Reactor Safeguards, June 7–9, 2000, the Committee considered the proposed AP1000 advanced reactor design pre-application and the issues that would need to be addressed as part of the staff's review of a license application. Attached is a list of issues that the Committee decided should be addressed by the Westinghouse Electric Company.

Attachment: ACRS Issues Related to the Review of the AP1000 Design

Reference:
Westinghouse Electric Company Slides, "AP1000 Overview," presented to the NRC staff on April 27, 2000.

cc: A. Vietti-Cook, SECY
J. Craig, OEDO
G. Millman, OEDO
S. Collins, NRR
D. Matthews, NRR
J. Wilson, NRR

Attachment

ACRS ISSUES RELATED TO THE REVIEW OF THE AP1000 DESIGN

1. The staff should ensure that the Westinghouse Electric Company's application for the AP1000 design includes the following:

   a. Scope of additional analyses needed for the Standard Safety Analysis Report (SSAR) Chapter 15 accidents. (Revised codes used in the analyses may need to be revalidated.)

   b. Clear identification of the inadequacies in the NOTRUMP code and the steps taken to compensate for them. (A convincing demonstration of the applicability of the revised NOTRUMP code to the AP1000 design is needed.)

   c. Demonstration of the scalability and adequacy of the existing thermal-hydraulic integral and separate effects data.

   d. Identification of additional experiments or analyes needed to justify crediting in-vessel core debris retention as part of the licensing basis.

   e. An evaluation of core performance.

   f. An evaluation of the impact of any changes in performance ratings resulting from design changes.

   g. An evaluation of the effects of the pool of water above the containment on containment structures during seismic events.

2. The staff should ensure that the Westinghouse Electric Company's probabilistic risk analysis for the AP1000 includes the following:

   a. In-containment aerosol behavior, especially the effects of particle charging

   b. Catastrophic failure of the steel shell containment

   c. Containment bypass accident sequences, especially sequences involving steam generator tube ruptures

   d. Reactor coolant system depressurization reliability

   e. Efficacy and reliability of external cooling of the containment shell

   f. Stratification and mixing in the containment