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

April 11, 1997

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

SUBJECT: AP600 ISOLATION REQUIREMENTS FOR NORMAL RESIDUAL HEAT REMOVAL SYSTEM (RNS)

Dear Mr. Liparulo:

In a letter dated December 6, 1996, we sent you a list of potential critical path issues in the design certification process for the AP600. One of the issues (key issue #10) involves the automatic containment isolation of non-safety-related normal RNS. Many systems that have traditionally been safety-related systems are nonsafety-related in the AP600 design. The staff has generally required that nonsafety-related systems be automatically isolated on a containment isolation signal using diversity in the parameters sensed for generating the containment isolation signal. The AP600 nonsafety-related RNS does not isolate on a generic containment isolation signal, but rather on a high containment radiation signal. In a February 20, 1997 letter, Westinghouse states that the RNS does not isolate on a generic containment isolation signal in order to permit the RNS to perform its nonsafety-related defense-in-depth function, while still protecting the integrity of containment by isolating on a high radiation signal.

The staff has accepted exceptions to the automatic containment isolation criteria (such as diversity) where the applicant has justified the system's importance to safety. Westinghouse states in its February 20, 1997, letter that the overall plant safety is enhanced by utilizing a non-generic, non-diverse, containment isolation signal for the RNS to provide defense-in-depth response to accidents. However, Westinghouse has not provided any quantitative risk assessment to support this claim.

It is the staff's position that Westinghouse should either provide a diverse automatic containment isolation signal for the RNS or provide a risk informed justification that non-automatic isolation of the RNS on a containment isolation signal is safer than automatic isolation. If Westinghouse elects to establish that non-automatic containment isolation of the RNS is a safer design, Westinghouse must still provide leak detection instrumentation in the RNS rooms. Westinghouse must also demonstrate that the instrumentation will permit the plant operator to identify and manually actuate containment isolation of the RNS when a leak is indicated in sufficient time to prevent exceeding the environmental qualification of the safety related equipment in the RNS rooms. The staff would still expect the RNS to automatically isolate on a high radiation signal.

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If you have any questions regarding this matter, you can contact Bill Huffman at (301) 415-1141.

Sincerely,

original signed by: Marylee Slosson

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

Docket No. 52-003

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Docket No. 52-003
AP600

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