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

July 14, 1992

Mr. David A. Ward, Chairman
Advisory Committee on Reactor Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Ward:

SUBJECT: INTERIM REPORT ON THE USE OF DESIGN ACCEPTANCE CRITERIA (DAC) IN THE CERTIFICATION OF THE GE NUCLEAR ENERGY (GE) ADVANCED BOILING WATER REACTOR (ABWR)

I am responding to your letter to the Chairman of June 16, 1992, in which you discussed the use of DAC in the certification of the GE ABWR design. I am pleased that you have examined the DAC and shared your concerns with the staff in each of the four areas in which DAC are proposed for the ABWR.

You expressed concerns on the treatment of two issues in the area of piping systems. Although not part of the piping DAC, the staff is reviewing these issues as part of its review of the ABWR design. As discussed with you on June 3, 1992, the staff is currently working to address the issues of compartment pressurization and the environmental effects of pipe breaks. For compartment pressurization, the staff is performing confirmatory subcompartment analyses. For the environmental effects of pipe breaks, GE's position is that fully independent trains of essential systems, including auxiliary systems, are located in separate compartments. Where this is not practicable, spatial separation is required, or specific barriers, enclosures, shields, or restraints are provided. The staff has been reviewing the design of each compartment to determine the validity of this position, and is considering including requirements in the building ITAACs and equipment qualification ITAAC to ensure verification of these issues. The staff will address these issues in Chapters 3 and 6 of the final safety evaluation report (FSER) for the ABWR.

You noted that because of shortcomings of the ABWR probabilistic risk analysis (PRA), the minimum inventory of fixed alarms, displays, and controls that are being developed as a part of the design certification material for the control room man/machine interface may not be complete. This issue is not part of the control room DAC. The minimum inventory was primarily developed from a review of the ABWR Emergency Procedure Guidelines (EPGs). The human reliability analyses (HRA) portion of the PRA served only to provide further insights into the minimum inventory and did not identify any major additional instrumentation needs. As you know, the staff initially commented on the HRA portion of the PRA in the draft safety evaluation report, and will evaluate any additional information GE has supplied in the FSER. Based on the lack of detailed

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information provided by GE to date in this area, the staff expects that the HRA portion of the review will be addressed in a supplement to the FSER, and then any further instrumentation needs will be incorporated into the minimum inventory.

You expressed concerns regarding the scope of the man/machine interface DAC/ITAAC, in particular, the influence of transmission switchyard workstations, and the incorporation of human factors principles in the design of local control panels where instrumentation and controls important to safety are located. For any evolutionary plant design including the ABWR, if the switchyard control workstation is physically within the control room, then the DAC/ITAAC for human factors considerations of the control room design apply to this workstation. For those cases where the switchyard control workstation is not part of the control room, then it is not covered by the human factors DAC/ITAAC. Similarly, with the exception of the remote shutdown panel, local control stations are not within the scope of the human factors DAC/ITAAC. The need to incorporate human factors in the design of local control stations was considered in the ABWR review, but human factors for local control stations was determined not to be necessary and therefore, was not addressed in the ABWR FSER. This is because the emergency procedure guidelines do not place primary reliance on operator actions at local control stations for emergency and accident conditions in the ABWR, and therefore, local control stations are not considered as significant to safety as the main control room and remote shutdown panel.

The staff will continue to provide updates to you on the reviews of the DAC for radiation protection and piping systems discussed in SECY-92-196, "Development of Design Acceptance Criteria for the Advanced Boiling Water Reactor." The staff also expects to inform you of the DAC/ITAAC for the man/machine interface and the instrumentation and controls in a similar manner. The staff will continue to interact with you to address the concerns discussed in your letter and to keep you abreast of developments in these areas.

Sincerely,
Original Signed By:
James M. Taylor
James M. Taylor
Executive Director
for Operations

cc: The Chairman
Commissioner Rogers
Commissioner Curtiss
Commissioner Remick
Commissioner de Planque
SECY

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