



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

February 14, 1994

Files/PDR

Dr. J. Ernest Wilkins, Jr., Chairman
Advisory Committee on Reactor Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Dear Dr. Wilkins:

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

I am responding to the letter you sent to Chairman Selin on January 14, 1994, in which you submitted a final report on the use of DAC in the certification of the ABWR design. I am pleased that, after extensive review of the four DAC areas, the ACRS is generally satisfied that they provide a reasonable basis for the staff's final safety determination for those respective design aspects of the ABWR. However, I would like to address the issues that you discussed for each of the specific DAC areas.

First, I am pleased that all your concerns have been adequately addressed in the human factors engineering (HFE) DACs.

Second, for the radiation protection DACs, you commented that some terms were used in the Tier 1 material that could be misunderstood and that those terms should be clarified. The term "vital areas" for radiation protection purposes is used in NUREG-0737, Item II.B.2 and is a commonly understood term in the nuclear power plant radiation protection community. The term is also defined in the Tier 1 material and in the information in Chapter 12 of the Standard Safety Analysis Report (SSAR); therefore, the term should be clear to radiation protection designers. The discussion of different acceptance criteria for the ventilation system in rooms that "require infrequent access" and rooms that "seldom require access" was an attempt to describe the proper ventilation design philosophy while allowing some flexibility in the detailed design. There is no concise description which can be used to clearly delineate the break in frequency of room access between "infrequent" and "seldom." However, after considering the ACRS's comments, the staff plans to substitute the words "where access is not anticipated to perform scheduled maintenance or surveillance" for the rooms that "seldom require access." With this change, the staff believes that radiation protection designers will understand the philosophy from the descriptions given in the radiation protection DACs and the information in SSAR Chapter 12, while maintaining the necessary flexibility to implement the detailed ventilation system design.

Third, for the piping DACs, the staff has discussed them extensively with the ACRS, and documented the remaining open and confirmatory items in the ABWR advance copy of the safety evaluation report (SER). The staff is working closely with members of the ACRS to resolve these remaining items, and anticipates final resolution on them soon.

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Finally, for the instrumentation and control (I&C) DACs, you state that you would have preferred that the staff had utilized a review model similar to that used in the HFE DACs, because you believe the staff has not formulated an identifiable set of criteria to be met by the digital I&C system. You also recommend that the staff produce a standard review plan (SRP) for digital I&C systems for both advanced light water reactors (ALWRs) and operating plant backfits.

The staff has pursued an approach for the I&C DACs which is similar to that for the HFE DACs. In both cases, the staff needed to reach a balance between existing criteria and rapidly changing technology. The computer development process which is part of the I&C DAC contains elements for digital system design with reference to a number of industry standards which are currently in use by the industry. The staff has relied on these standards to reach a safety finding for the ABWR and for digital system retrofits to operating plants. The staff agrees that an update of the SRP to incorporate digital system criteria is appropriate, and is continuing its efforts to update the SRP. For example, the staff has worked with industry in the development of guidance for implementing digital retrofits to operating facilities under 10 CFR 50.59. The updated SRP will be a compilation of previously implemented review criteria, including the computer development process, national and international industry standards, Commission-approved positions used in the ALWR reviews, and the retrofit guidance document.

Sincerely,

*Original signed by
James M. Taylor*

James M. Taylor
Executive Director
for Operations

cc: Chairman Selin
Commissioner Rogers
Commissioner Remick
Commissioner de Planque
SECY

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FROM: DUE: 02/16/94

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FINAL REPLY:

J. Ernest Wilkins, Jr.
ACRS

TO: Chairman Selin

Received 1/21/94

FOR SIGNATURE OF : ** GRN **
Executive Director

CRC NO:

DESC: FINAL REPORT ON THE USE OF THE DESIGN ACCEPTANCE
CRITERIA PROCESS IN THE CERTIFICATION OF THE
GENERAL ELECTRIC NUCLEAR ENERGY ADVANCE BOILING
WATER REACTOR DESIGN

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