

February 13, 2009

Dr. Mario V. Bonaca, Chairman
Advisory Committee on Reactor Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: INTERIM LETTER 6: CHAPTERS 7 AND 14 OF THE U.S. NUCLEAR
REGULATORY COMMISSION STAFF'S SAFETY EVALUATION REPORT WITH
OPEN ITEMS RELATED TO THE CERTIFICATION OF ECONOMIC SIMPLIFIED
BOILING-WATER REACTOR DESIGN

Dear Dr. Bonaca:

I am responding to your letter of December 22, 2008, regarding the Advisory Committee on Reactor Safeguards' (ACRS or Committee) meeting on December 4-6, 2008.

During the full committee meeting on December 4, 2008, and subcommittee meetings held on October 21-22 and December 3, 2008, the staff discussed its safety evaluation report (SER) with open items (OIs) for Chapters 7 and 14 of the economic simplified boiling-water reactor design certification application. These discussions included the status and technical concerns of the OIs identified in Chapters 7 and 14. The ACRS raised several specific concerns in its letter.

Enclosed are the staff's responses to the ACRS comments. The staff will continue to work with GE Hitachi Nuclear Energy to obtain satisfactory resolution of the OIs presented in the SER.

Sincerely,

/RA Bruce S. Mallett for/

R. W. Borchardt
Executive Director
for Operations

Enclosure:
Staff Responses to ACRS Comments

cc: Chairman Klein
Commissioner Jaczko
Commissioner Lyons
Commissioner Svinicki
SECY

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Letter to Mario V. Bonaca dated February 13, 2009

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**U.S. Nuclear Regulatory Commission
Staff Response to the Advisory Committee on Reactor Safeguards Interim Letter
Dated December 22, 2008
Regarding Safety Evaluation Reports with Open Items
on the Economic Simplified Boiling-Water Reactor
Design Certification Application**

This enclosure includes U.S. Nuclear Regulatory Commission (NRC) staff's responses to comments from the Advisory Committee on Reactor Safeguards (ACRS or the Committee) on the staff's safety evaluation report (SER) with open items for Chapter 7, "Instrumentation and Control Systems," and Chapter 14, "Initial Test Program," of the economic simplified boiling-water reactor (ESBWR) design certification application. The staff plans to discuss final resolution of these concerns during the ACRS committee meetings on the final SER for the ESBWR design certification application.

ACRS Comment:

"The applicant did not provide cross-references in Tier 2 DCD [design control document], Section 14.3, showing where key ESBWR design features, systems and parameters from the accident analyses are addressed in the Tier 1 information. The staff requested that GEH [GE Hitachi Nuclear Energy] provide this cross-reference table in RAIs [requests for additional information]."

Staff Response:

The staff requested this information in RAI 14.3-405. GEH is scheduled to respond on February 27, 2009.

ACRS Comment:

"The Design Acceptance Criteria (DAC) for the Distributed Control and Instrumentation System are incomplete. The staff has issued RAIs that address the DAC needed to ensure adequacy of the design process."

Staff Response:

GEH has responded to several RAIs related to the Committee's concern regarding the completeness of the DAC. The responses to these RAIs are currently under review. The staff may issue additional follow-up RAIs after completing the review of the GEH responses.

ACRS Comment:

“The Tier 2 Design Certification Document (DCD) should include additional information on the architecture of the instrumentation and control (I&C) system, and appropriate ITAAC [Inspections, Tests, Analyses, and Acceptance Criteria] and DAC should be added to the Tier 1 DCD.”

Staff Response:

The staff will request additional information on architecture from GEH as needed to make the reasonable assurance finding and will carefully evaluate the information against the proposed DAC. The staff bases its reasonable assurance finding on both the Tier 2 design information and on the proposed DAC/ITAAC for the ESBWR I&C.

ACRS Comment:

“The current Tier 2 documentation does not contain integrated functional logic diagrams at a level of detail showing input signals, protection and actuation logic, output signals, and basic dependencies such as power supplies. This information should be included in Tier 2 descriptions and verified by Tier 1 DAC or ITAAC.”

Staff Response:

The staff has issued RAI 7.1-138 that addresses the simplified logic diagrams needed to ensure adequacy of the design process. The staff will request that GEH include simplified logic diagrams in the DCD as needed to make the reasonable assurance finding. The staff bases its reasonable assurance finding on both the Tier 2 design information and on the proposed DAC/ITAAC for the ESBWR I&C. Thus, the staff will request from GEH the additional level of detail as needed that will be included in Tier 2 descriptions for input signals, protection and actuation logic, output signals, and basic dependencies such as power supplies, and will carefully evaluate the information against the proposed DAC.