

April 1, 2009

Dr. Mario V. Bonaca, Chairman  
Advisory Committee on Reactor Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

SUBJECT: RESPONSE TO ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
REPORT ON THE DRAFT FINAL RULE REGARDING ALTERNATE  
FRACTURE TOUGHNESS REQUIREMENTS FOR PROTECTION AGAINST  
PRESSURIZED THERMAL SHOCK EVENTS, 10 CFR 50.61a (RIN 3150-AI01)

Dear Dr. Bonaca:

In your letter dated March 13, 2009, you summarized the results of the review by the Advisory Committee on Reactor Safeguards (ACRS) of the final rulemaking related to alternate fracture toughness requirements for protection against pressurized thermal shock events (Title 10, Section 50.61a, of the *Code of Federal Regulations* (10 CFR 50.61a)) prepared by the U.S. Nuclear Regulatory Commission staff.

On the basis of its review, the ACRS concluded that the Commission should approve the final rule, and it supported the staff's decision to include a requirement in the rule to assess surveillance data. The ACRS recognized that, although there is an extensive database on embrittlement and an increased understanding of the mechanisms of embrittlement, surveillance specimens can provide an early warning if new and unexpected mechanisms of embrittlement should emerge.

To aid during the implementation phase after approval and issuance of the rule, the ACRS recommended that the staff verify and document the capability of nondestructive examination procedures that will be used to characterize the flaw distributions in reactor vessels.

As noted in the rule's Statements of Consideration, the industry has documented that licensees have capabilities qualified under the American Society of Mechanical Engineers Boiler and Pressure Vessel Code to measure flaw depth as small as 0.075 inches. The staff modified the rule language to account for this and developed a very prescriptive rule to aid licensees by clearly specifying the information they must provide for review and approval. The staff recognizes that documentation of the capability of nondestructive examination procedures will be of value for licensees implementing the rule. The staff understands that the industry has an initiative to prepare guidance documents that will assist the licensees that will implement the revised pressurized thermal shock rule. The staff strongly supports this initiative and will consider and comment on these documents when submitted for review and approval to the Director of the Office of Nuclear Reactor Regulation.

In addition, the ACRS stated that an effort is needed to plan for the most effective use of surveillance samples to ensure that any deviations from the current understanding of embrittlement trends in reactor vessels will be identified in a timely manner. The staff agrees with the ACRS. As noted during the ACRS Subcommittee meeting held on March 4, 2009, the staff has already initiated discussions with the industry's Materials Reliability Program and

M. Bonaca

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Pressurized Water Reactor Owners Group regarding the optimization of the testing of the remaining surveillance capsules. These discussions have centered on the topic of developing a fleetwide plan to ensure a distribution of surveillance capsule tests in the high neutron fluence range where systematic deviations from current embrittlement models may occur. The staff intends to continue this dialogue with the industry and facilitate the implementation of a testing program which will provide the maximum benefit in terms of providing information to ensure safe continued operation of the U.S. nuclear fleet.

Once again, the staff recognizes the ACRS commitment to safety and appreciates the Committee's continued efforts in support of the rulemaking process.

Sincerely,

*/RA/*

R. W. Borchardt  
Executive Director  
for Operations

cc: Chairman Klein  
Commissioner Jaczko  
Commissioner Lyons  
Commissioner Svinicki  
SECY

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