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Mr. James M. Taylor
Executive Director for Operations
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Dear Mr. Taylor:

SUBJECT: PROPOSED FINAL RULE AND REGULATORY GUIDE FOR FRACTURE TOUGHNESS REQUIREMENTS FOR LIGHT WATER REACTOR PRESSURE VESSELS

During the 422nd meeting of the Advisory Committee on Reactor Safeguards, June 8-10, 1995, we discussed the subject rule and regulatory guide. We had the benefit of discussions with representatives of the NRC staff. We also had the benefit of the documents referenced.

The need for the timely development of guidance and requirements for the thermal annealing of reactor pressure vessels (RPVs) became apparent during consideration of the fracture toughness of the RPV at the Yankee Nuclear Power Station. The recent review of the data for the Palisades RPV suggests that variability in the composition of welds and, hence, the uncertainty in the estimation of pressurized thermal shock reference temperature (RTPTS) is greater than previously considered. The result of this review adds greater weight to the need for appropriate regulatory guidance on thermal annealing.

We reviewed a draft version of the rule and the regulatory guide for fracture toughness requirements during our September 1993 meeting. A number of changes have been made in the rule and regulatory guide as a result of public comments. These changes do not affect our technical assessment that the rule and regulatory guide should prove useful to the licensees and the NRC staff, and we believe they should be issued. We also support the proposed changes to Appendix H of 10 CFR Part 50 and the pressurized thermal shock rule (10 CFR 50.61).

We have no objection to the changes in Appendix G that are intended to clarify and restructure the current requirements. We believe, however, that the prohibition against using nuclear heat to conduct ASME Section XI pressure and leak tests of boiling water reactor pressure vessels merits re-examination. It is not at all apparent that this prohibition can be justified in terms of risk. Indeed, there is reason to believe that there could be a reduction in risk in view of the increased requirements for containment and emergency core cooling for critical reactors. We recommend that a probabilistic assessment be performed. Since the practice of using nuclear heat is currently prohibited, an explicit statement in Appendix G is unnecessary and would restrict future action based upon the results of the probabilistic assessment. However, we do not wish this reassessment to delay publication of the thermal annealing rule, the amendment to Appendix H, or the amended

pressurized thermal shock rule.

Sincerely,

T. S. Kress
Chairman

References:

1. Letter dated September 20, 1993, from J. Wilkins, Jr., Chairman, ACRS, to J. Taylor, Executive Director for Operations, NRC, Subject: Proposed Rule and Regulatory Guide for Fracture Toughness Requirements
2. Memorandum dated May 23, 1995, from L. Shao, Director, Division of Engineering Technology, RES, to J. Larkins, Executive Director, ACRS, Subject: Request for ACRS Review of Final Rule and Regulatory Guide for Fracture Toughness Requirements for Light Water Reactor Pressure Vessels, with the following attachments:

. Amendment to 10 CFR 50.61, "Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock Events"

. Amendment to 10 CFR Part 50, Appendix G, "Fracture Toughness Requirements"

. Amendment to 10 CFR Part 50, Appendix H, "Reactor Vessel Material Surveillance Program Requirements"

. Final Rule (10 CFR 50.66), "Requirements for Thermal Annealing of the Reactor Pressure Vessel"

. Proposed Regulatory Guide 1.XXXX, "Format and Content of Report for Thermal Annealing of Reactor Pressure Vessels"

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