

D860916

Honorable Lando W. Zech, Jr.
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Zech:

SUBJECT: ACRS COMMENTS ON THE PROPOSED REVISION TO THE ECCS RULE IN
10 CFR 50.46, "ACCEPTANCE CRITERIA FOR ECCS FOR LIGHT WATER
NUCLEAR POWER REACTORS," AND APPENDIX K, "ECCS EVALUATION
MODELS"

During its 317th meeting, September 11-13, 1986, the Advisory Committee on Reactor Safeguards reviewed the NRC Staff proposal to issue for public comment a revision to the ECCS rule contained in 10 CFR 50.46 and Appendix K. In its review, the Committee had the benefit of discussions with representatives of the Office of Nuclear Regulatory Research (the sponsors of the rule revision) and the Office of Nuclear Reactor Regulation. Subcommittee meetings on this topic were held on April 29-30 and August 28, 1986. The Committee also had the benefit of the documents referenced.

There is a long history of emergency core cooling issues and evolution of the ECCS rule which significantly predates proposed issuance of this rule revision. The ACRS has had a long-standing involvement with these issues and, over the years, the Committee has urged that the rule be carefully evaluated for possible revision in recognition of LOCA research which demonstrated substantial core cooling margins. The NRC Staff had a revision effort underway in 1978-79, but this effort was curtailed by the TMI-2 accident and resulting regulatory actions. In 1983, the NRC endorsed an interim revision approach which encouraged improved evaluation models based on realistic calculations combined with an uncertainty evaluation to demonstrate an adequate margin of safety. Since this approach was tied to the existing ECCS rule requirements, the extent of model improvement was limited.

The approach now proposed by the NRC Staff complements the interim revision noted above. The revised rule would eliminate the requirement to use the models specified in Appendix K and allow use of realistic models combined with an uncertainty analysis of the overall calculation. Certain 10 CFR 50.46 limits, such as 2200~F peak clad temperature and 17% cladding oxidation, would be maintained as bounds on the calculation. The current Appendix K requirements would also be grandfathered indefinitely for licensees who elect to use the present evaluation model approach. A proposed regulatory guide accompanies the revised rule.

While we support the intent of the revised rule, we offer the following comments:

- ~ The acceptability of realistic evaluation models rests on the development of satisfactory methodology for determination of the overall uncertainty. Most of the development work needed here is

either ongoing or planned by the Office of Nuclear Regulatory Research. We recommend that the methodology used to evaluate uncertainty be subjected to peer review. We also wish to review this work.

- ~ The proposed regulatory guide lacks sufficiently detailed guidance, particularly in the areas of uncertainty calculations and those features of the models that would be acceptable to the NRC Staff. The guide should be indexed so that it corresponds more closely to the general provisions of the rule.
- ~ A Compendium of ECCS research will be issued in support of the rule. We understand that RES plans to submit the compendium to peer review. We wish to review the final document.
- ~ We are not yet convinced that the current ECCS rule should be grandfathered indefinitely.

We believe that the revised ECCS rule, and the associated regulatory guide, should be issued for public comment. The Committee expects to complete its review of the proposed rule package after NRC Staff consideration of the public comments.

Sincerely,

David A. Ward
Chairman

References:

1. U.S. Nuclear Regulatory Commission Draft SECY paper for the Commissioners from V. Stello, EDO, "Revision to the ECCS Rule Contained in Appendix K and Section 50.46 of 10 CFR Part 50," provided to the ACRS August 18, 1986
2. U.S. Nuclear Regulatory Commission Draft NUREG Document, "Compendium of ECCS Research for Realistic LOCA Analysis," Office of Nuclear Regulatory Research, transmitted by memorandum to ACRS from L. Shotkin, NRC, dated August 12, 1986

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