



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, D.C. 20555-0001

February 11, 2000

Dr. William D. Travers  
Executive Director for Operations  
U.S. Nuclear Regulatory Commission  
Washington DC 20555-0001

Dear Dr. Travers:

**SUBJECT: REVISION OF APPENDIX K, "ECCS EVALUATION MODELS," TO 10 CFR PART 50**

During the 469<sup>th</sup> meeting of the Advisory Committee on Reactor Safeguards, February 3-5, 2000, we reviewed the proposed final revision of Appendix K to 10 CFR Part 50. During this review, we had the benefit of discussions with representatives of the NRC staff and the Caldon Corporation. We also had the benefit of the documents referenced. We had previously commented on the proposed revision to Appendix K in a letter dated July 22, 1999.

The proposed final rule will permit a reduction in the conservatism of the reactor power level assumed for loss-of-coolant accident analysis by relaxing the requirement that a licensee assume 1.02 times licensed power for the Appendix K emergency core cooling system analysis. This rulemaking is in response to requests from licensees seeking credit in safety analyses for reduction in uncertainty of reactor power resulting from the use of highly accurate flow measurement systems. This rule change will allow licensees to credit use of such measurement systems and will avoid an expected large number of exemption requests, thereby reducing regulatory burden. Licensees are expected to pursue small power increases or other cost-saving changes to plant operating parameters through license amendment requests.

#### Recommendations

- The Commission should approve this rule change.
- The staff should provide guidance to licensees to account appropriately for power measurement uncertainty in their safety analyses.

#### Discussion

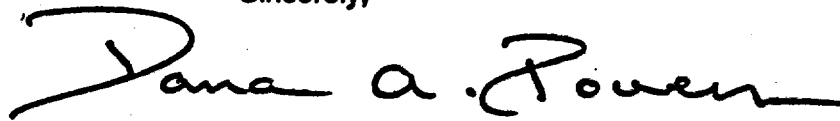
This rule is an example of allowing an appropriate reduction of conservatism in the regulations when the uncertainties that led to this conservatism can be shown to have been reduced. In principle, this is a straightforward matter. Implementation of the rule will require specific

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guidance about the definition of uncertainties. For example, does "x% uncertainty" imply that there is some confidence level, such as 95%, that the deviations between actual and measured values are less than x% of the measured values? How are uncertainties in several values contributing to power calculation, such as temperatures and flowrate, to be combined? Answers to these questions as well as a suitable reference should be provided in the guidance to the licensees.

In our July 22, 1999 letter on this matter, we recommended that the staff evaluate the possible impact of the proposed rule on parts of the regulations other than Appendix K. Some changes to guidance documents may be necessary, as mentioned in the Statement of Considerations accompanying the rule revision.

Sincerely,



Dana A. Powers  
Chairman

References:

1. Note dated January 19, 2000, from Joe Donoghue, Office of Nuclear Reactor Regulation, NRC, to Paul A. Boehmert, ACRS, transmitting Final Rule: Revision of Part 50, Appendix K, "ECCS Evaluation Models."
2. ACRS letter dated July 22, 1999, from Dana A. Powers, Chairman, ACRS, to William D. Travers, Executive Director for Operations, NRC, Subject: Revision of Appendix K, "ECCS Evaluation Models," to 10 CFR Part 50.
3. Letter dated August 18, 1999, from William D. Travers, Executive Director for Operations, NRC, to Dana A. Powers, Chairman, ACRS, Subject: Staff Response to ACRS Letter of July 22, 1999, on Revision of Appendix K, "ECCS Evaluation Models," to 10 CFR Part 50.
4. Letter dated December 15, 1999, from David J. Modeen, Nuclear Energy Institute, to U.S. Nuclear Regulatory Commission, Subject: Transmittal of Comments on Proposed Change to 10 CFR Part 50, Emergency Core Cooling System Evaluation Models.
5. Caldon Comments on NRC Proposed Rule ECCS Evaluation Models dated December 15, 1999.
6. Letter dated October 26, 1999, from James H. McCarthy, Virginia Power, to U. S. Nuclear Regulatory Commission, Subject: Emergency Core Cooling System Evaluation Models, 10 CFR 50.
7. Letter dated December 9, 1999, from Mark J. Burzynski, Tennessee Valley Authority, to U. S. Nuclear Regulatory Commission, Subject: NRC - Emergency Core Cooling System Evaluation Models.
8. Letter dated December 14, 1999, from James A. Hutton Jr., PECO Nuclear, to U. S. Nuclear Regulatory Commission, Subject: Comments Concerning "Emergency Core Cooling System Evaluation Models."

9. **Letter dated December 20, 1999, from Harry P. Salmon, Jr., New York Power Authority, to U.S. Nuclear Regulatory Commission, Subject: Comments on Proposed Rulemaking, Emergency Core Cooling System Evaluation Models.**