

November 19, 2010

Dr. Said Abdel-Khalik, Chairman  
Advisory Committee on Reactor Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

SUBJECT: DRAFT FINAL RULE FOR RISK-INFORMED CHANGES TO  
LOSS-OF-COOLANT ACCIDENT TECHNICAL REQUIREMENTS  
TITLE 10 OF THE CODE OF FEDERAL REGULATIONS PART 50.46a.

Dear Dr. Abdel-Khalik:

I am responding to your October 20, 2010, letter regarding the efforts of the U.S. Nuclear Regulatory Commission (NRC) staff to issue a final alternative rule (Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50.46a, "Alternative Acceptance Criteria for Emergency Core Cooling Systems for Light-Water Nuclear Power Reactors") to redefine the largest design-basis loss-of-coolant accident from the current double-ended guillotine break of the largest pipe to a smaller, risk-informed break size. We appreciate the time and effort the Advisory Committee on Reactor Safeguards (ACRS) has devoted to this important subject.

Your letter documented the ACRS' conclusion that for operating reactors, the staff's draft final rule was an acceptable risk-informed alternative to the current regulations in 10 CFR Part 50.46, "Acceptance Criteria for Emergency Core Cooling Systems for Light-Water Nuclear Power Reactors." The ACRS also concluded that it is premature to extend 10 CFR Part 50.46a to new reactor designs at this time. This second conclusion was primarily based on the concern that new reactors are expected to have significantly different risk profiles from the current operating reactor fleet and that development of appropriate risk metrics and risk acceptance criteria for these designs is still in the conceptual stage. The ACRS also recommended that if the NRC staff decides to include new reactors in the final rule, the allowable outage time for equipment needed to mitigate beyond-transition break size (TBS) loss-of-coolant accidents should be subject to an additional limitation to preclude a significant decrease in the level of safety provided by the new design.

The staff has carefully evaluated the ACRS' conclusions and recommendations regarding new reactors. The draft final rule states in paragraph (c)(2) that an applicant for a construction permit, design approval, design certification, manufacturing license, or combined license or a holder of a design approval seeking to implement the requirements of 10 CFR Part 50.46a shall demonstrate why the proposed reactor design is similar to the designs of reactors licensed before the effective date of the rule. That demonstration must include a recommendation for an appropriate TBS and a justification that the recommended TBS is consistent with the technical basis for the rule.

If the proposed design is similar, paragraph (f)(3)(iv) of the rule requires the new reactor applicants under Part 52 to supplement the allowable increases in core damage frequency and large early release frequency with an evaluation demonstrating that implementing the proposed plant changes will also not result in a significant decrease in the level of safety otherwise provided

by the new reactor design. Further, in the responses to public comments related to the application of 10 CFR Part 50.46a to new reactor designs, the staff explains that if, in response to the staff's policy paper, SECY-10-0121, "Modifying the Risk-Informed Regulatory Guidance for New Reactors," dated September 14, 2010, the Commission directs the staff to promulgate guidance that describes new metrics to be used for new reactors, the staff will also make appropriate conforming changes to 10 CFR Part 50.46a by rulemaking.

The staff agrees with the ACRS recommendation that a new reactor applicant under Part 52 seeking to implement the requirements of 10 CFR Part 50.46a must justify the allowable time for operating in configurations without a demonstrated capability to mitigate a beyond-TBS pipe break to preclude a significant decrease in the level of safety provided by the new design. The staff has added a provision to paragraph (d)(5) of the rule to implement this recommendation.

With these additions, the staff believes that the requirements in the draft final rule and the clarifying provisions in its supporting documentation are sufficient to continue to recommend that the Commission apply the rule to new reactor designs. Should the Commission direct the staff, in response to SECY-10-0121, to adopt an approach other than the option (Option 2) recommended by the staff, the staff will respond appropriately.

Sincerely,

***/RA by Martin Virgilio for/***

R. W. Borchardt  
Executive Director  
for Operations

cc: Chairman Jaczko  
Commissioner Svinicki  
Commissioner Apostolakis  
Commissioner Magwood  
Commissioner Ostendorff  
SECY

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