

July 30, 2004

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

SUBJECT: SECY-04-0037, "ISSUES RELATED TO PROPOSED RULEMAKING TO RISK-INFORM REQUIREMENTS RELATED TO LARGE BREAK LOSS-OF-COOLANT ACCIDENT (LOCA) BREAK SIZE AND PLANS FOR RULEMAKING ON LOCA WITH COINCIDENT LOSS-OF-OFFSITE POWER"

Dear Dr. Bonaca:

This is in response to your letter of April 27, 2004, on the staff efforts to develop a new voluntary rule to redefine the largest design basis loss-of-coolant accident (LOCA) from the current double ended guillotine break of the largest pipe to a smaller size. This redefinition will allow a better focus of resources on more safety significant transients. Our comments on the ACRS conclusions and recommendations are provided below.

1. *The risk-informed revision to 10 CFR 50.46 should permit a wide range of applications of the new break size as long as it can be demonstrated that the resulting changes in risk are small and adequate defense-in-depth is maintained.*

The staff acknowledges and appreciates your recommendation that the proposed rule should permit a wide range of applications. In its July 1, 2004, SRM, the Commission decided that the proposed rule should allow operational as well as design changes. The Commission clarified that the scope of changes should be constrained in areas where engineering margins should be retained to satisfy the safety principles of RG1.174 and where the current design requirements contribute significantly to the "built-in capability" of the plant to resist security threats. A requirement for containment integrity should also be included. The Commission's direction that the proposed rule should permit a wide range of applications with a minimal number of constraints in areas that will be defined in the rule is consistent with the ACRS's recommendation.

2. *The process and criteria in Regulatory Guide (RG) 1.174 are appropriate for evaluating the acceptability of changes proposed under a revised rule. However, explicit criteria to ensure mitigative capability for breaks beyond the new maximum break size and to limit the risk associated with late containment failure should be developed as part of the revised rule to ensure that sufficient defense-in-depth is maintained as plant changes are made.*

The staff agrees that the process and criteria in RG 1.174 are generally appropriate for evaluating the acceptability of plant changes, including those that licensees propose because of the change in the maximum break size. Mitigative capability and other metrics such as late containment failure are not explicitly addressed in RG 1.174. The rule will require that mitigative capability commensurate with the frequency of a beyond design basis LOCA be retained for breaks between the current and the new maximum break size. The criteria to define appropriate mitigative capability are being developed. Although not part of this rulemaking effort, the staff will consider the need to develop criteria that could be used to monitor and to limit any changes in risk associated with late containment failure as part of a future revision to RG 1.174. The staff looks forward to further interactions with the Advisory Committee on Reactor Safeguards (ACRS) while resolving these important issues.

3. *We concur with the recommendation of the staff that the appropriate metric for the design basis maximum break size is the direct LOCA initiating event frequency.*

The staff agrees that the appropriate probabilistic metric to use to select the new maximum design base break size is the direct LOCA initiating frequency. The staff is investigating if, and how, this probabilistic metric should be combined with other considerations to select a new maximum break size.

4. *Additional criteria and guidance are not needed for tracking cumulative risk due to the changes resulting from a risk informed 10 CFR 50.46.*

Criteria and guidance on evaluating and documenting the cumulative changes in risk arising from risk-informed applications are provided in RG 1.174. The staff intends to develop a RG that provides an acceptable approach for licensees to prepare and submit applications for plant-specific changes enabled by risk-informing the requirements for large break LOCAs. A Standard Review Plan chapter providing guidance to the NRC staff on the review of such applications is also planned. Any criteria and guidance on evaluating and documenting cumulative changes in risk in these application specific guidance documents will comport with the criteria and guidance in RG 1.174.

5. *The results of the expert elicitation for the frequency of LOCA events are yet to be finalized and peer-reviewed, but the process employed and the qualifications of the panel members appear to be well suited to the problem. The results should help provide a technical basis for the selection of the new maximum break size.*

The staff is evaluating how the expert elicitation results may best be used to support the rulemaking. The results will be used to help provide a technical basis for the selection of the new maximum break size. The staff appreciates your informed conclusion about the suitability of the expert elicitation process.

M. Bonaca

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We will remain in contact with your staff to arrange appropriate meetings to discuss the progress of this work with the Committee.

Sincerely,

***/RA Ellis W. Merschoff Acting For/***

Luis A. Reyes  
Executive Director  
for Operations

cc: Chairman Diaz  
Commissioner McGaffigan  
Commissioner Merrifield  
SECY

M. Bonaca

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