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

Dear Chairman Zech:

SUBJECT: PROPOSED RESOLUTION OF USI A-47, "SAFETY IMPLICATIONS  
OF CONTROL SYSTEMS" -- ACRS COMMENTS

During the 336th meeting of the Advisory Committee on Reactor Safeguards, April 7-9, 1988, we discussed the NRC Staff's proposed resolution of USI A-47, "Safety Implications of Control Systems." We previously met with members of the NRC Staff and reviewed the proposed resolution during our 331st meeting on November 5-7, 1987. Our Subcommittee on Instrumentation and Control Systems met on October 29, 1987 and March 24, 1988 to consider this matter. We also had the benefit of the documents referenced.

The proposed resolution of USI A-47 requires certain design modifications or upgrades for many plants, technical specification modifications for all plants, and issuance of an information letter to all applicants and licensees. These matters are currently scheduled to be published for public comment in April 1988, and the final resolution is scheduled to be issued in April 1989.

Although we agree with the proposed resolution of USI A-47 as it relates to steam generator and reactor vessel overfill, we believe that the scope of the issue has been unduly truncated. The problem description of USI A-47 in the last revision of the Aqua Book (NUREG-0606, "Unresolved Safety Issues Summary," now discontinued) gave a much broader issue for evaluation, with steam generator/reactor vessel overfill and overcooling transients identified only as a subtask. Other tasks included evaluation of all control system failures that have safety implications and evaluation of the effects of loss of power on control systems. It is not clear that these tasks were performed. We believe that they should be.

When reconsidering the scope, we recommend including an evaluation of the safety implications of failures in nonsafety-grade control systems that result from common-cause external events such as earthquakes, fires, and other potentially far-reaching events such as high or moderate energy pipe breaks. Such events were not evaluated in USI A-47, and we do not believe that they are adequately treated elsewhere in the context of this USI.

We recommend also that other events be included, such as the degradation or loss of control power or control air and the improper functioning of heating, ventilating, and air conditioning systems (particularly when temperature-sensitive devices are in the affected environment). Our questions to the Staff concerning these events met with less than satisfactory assurances that they have been considered in the program.

In conjunction with these efforts, the Staff should develop its position on how similar events will be included when resolving USI A-17, "Systems Interactions in Nuclear Power Plants," which considers safety-grade protection systems and protective actions. Since such events are likely to affect more than one system or component, whether safety grade or not safety grade, it is necessary to show how the evaluations performed for A-17 and A-47 collectively cover the situation.

We cannot agree that the Staff's recommendations constitute resolution of USI A-47 as originally defined. We recommend that the proposed resolution be issued as the resolution of an appropriately redefined generic issue and that the remaining concerns, as identified above, be included in a new generic issue, which need not necessarily be accorded USI status.

Sincerely,

W. Kerr  
Chairman

References:

1. U.S. Nuclear Regulatory Commission, Draft NUREG-1217, "Evaluation of Safety Implications of Control Systems in LWR Nuclear Power Plants," Technical Findings Related to Unresolved Safety Issue A-47, April 1987.
2. U.S. Nuclear Regulatory Commission, Draft NUREG-1218, "Regulatory Analysis for Proposed Resolution of USI A-47, Safety Implications of Control Systems," April 1987.
3. U.S. Nuclear Regulatory Commission, NUREG/CR-4265, "An Assessment of the Safety Implications of Control at the Calvert Cliffs 1 Nuclear Power Plant," Volumes 1 and 2, April 1986 and July 1986, respectively.
4. U.S. Nuclear Regulatory Commission, NUREG/CR-3958, "Effects of Control System Failures on Transients, Accidents and Core-Melt Frequencies at a Combustion Engineering Pressurized Water Reactor," March 1986.
5. U.S. Nuclear Regulatory Commission, NUREG/CR-4047, "An Assessment of the Safety Implications of Control at the Oconee 1 Nuclear Plant," March 1986.
6. U.S. Nuclear Regulatory Commission, NUREG/CR-4386, "Effects of Control System Failures on Transients, Accidents, and Core-Melt Frequencies at a Babcock and Wilcox Pressurized Water Reactor," December 1985.
7. U.S. Nuclear Regulatory Commission, NUREG/CR-4387, "Effects of Control System Failures on Transients, Accidents, and Core-Melt Frequencies at a General Electric Boiling Water Reactor," December 1985.
8. U.S. Nuclear Regulatory Commission, NUREG/CR-4385, "Effects of Control System Failures on Transients, Accidents, and Core-Melt Frequencies at a Westinghouse PWR," November 1985.
9. U.S. Nuclear Regulatory Commission, NUREG/CR-4326, "Effects of Control System Failures on Transients and Accidents at a 3-Loop, Westinghouse Pressurized Water Reactor," Volumes 1 and 2, August

1985 and October 1985, respectively.

10. U.S. Nuclear Regulatory Commission, NUREG/CR-4262, "Effects of Control System Failures on Transients and Accidents at a General Electric Boiling Water Reactor," Volumes 1 and 2, May 1985.

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