D890315

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

Dear Chairman Zech:

SUBJECT: PROPOSED SEVERE ACCIDENT RESEARCH PROGRAM PLAN

During the 347th meeting of the Advisory Committee on Reactor Safeguards, March 9-11, 1989, we discussed with members of the NRC staff a draft Severe Accident Research Program Plan, dated February 1989. Our Subcommittee on Severe Accidents met with the staff on March 7, 1989 to discuss this matter. We also had the benefit of the document referenced.

Because of the staff's schedule for presentation of the plan to the Commission, we were unable to perform a detailed review before preparing this report. However, on the basis of a preliminary review, we make the following comments.

The NRC began the Severe Accident Research Program shortly after the TMI-2 accident. The emphasis was said to be on understanding severe accident phenomena, and in developing a capability to calculate the risks of severe accidents. Computer codes were expected to play a key role in these calculations, and development of these codes and experiments related to their validation have represented a significant part of the severe accident research. Our previous reviews of the program have frequently led us to question the relevance of this research to regulatory needs. As a result, we have written a number of reports to the Commission recommending that there be a closer correlation between the severe accident research proposed and the policy being formulated to ensure protection of the public from the risk of severe accidents. We saw much of the severe accident research as not properly focused to provide the information needed.

In contrast, the February 1989 program plan proposes a review of the information available from previous research to identify areas in which further information is needed for regulatory decisions. Existing and proposed research programs will be reviewed and, if necessary, redirected to make it more likely that the needed information will be developed. It is also proposed that a method of evaluation, such as Code Scaling, Applicability, and Uncertainty recently developed by the staff for analysis of thermal-hydraulic codes, be used to evaluate a number of the severe accident codes. Further, in light of the fact that there appears to be duplication among some of the severe accident codes under development, it is proposed to examine which of these codes are needed for regulatory applications, and on the basis of the results, to decide which codes deserve further development. It is also proposed that documentation be required for both existing codes and those under development.

On the basis of our preliminary review, we believe that this program

plan represents a substantial change and is a very positive step. We endorse the staff's requirement that all contractors show that their proposed and continuing work address analyses or phenomena important in the predictions of risk, and have clearly defined objectives. We recommend that the Commission encourage the staff to continue in the direction indicated. Because this represents a significant departure from previous practice, some parts of the program are likely to encounter opposition. It is important that this be monitored carefully to ensure that it does not deter the positive aspects of the proposed program.

We expect to continue our review. However, our initial examination leads to the following specific observations.

The near-term program dedicates a major fraction of the total resources to studies of various phenomena associated with direct containment heating (DCH). We believe that as an alternative, a greater priority should be given to studies that might very well demonstrate that risk from DCH is negligibly low, or could be made low by readily achievable plant modifications or procedural changes, thus making much of the proposed DCH related research unnecessary.

The draft plan we have does not indicate how results of previous work or expected results from existing research programs of U.S. industry or foreign organizations are to be factored into the NRC program. We expect to explore this further.

Sincerely,

Forrest J. Remick
Chairman

Reference:
Memorandum dated February 10, 1989, from Brian W. Sheron, Division Director, Office of Nuclear Regulatory Research, to Forrest J. Remick, Chairman, ACRS, Subject: "Revised Severe Accident Research Program Plan" (Draft plan predecisional).

→