ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
UNITED STATES ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

April 14, 1967

Honorable Glenn T. Seaborg
Chairman
U. S. Atomic Energy Commission
Washington, D. C.

Subject: COMMENTS ON WATER REACTOR SAFETY RESEARCH PROGRAM

Dear Dr. Seaborg:

In response to a request from the Director, Division of Reactor Development and Technology, the ACRS has reviewed the draft document entitled "Water Reactor Safety Research Program, Summary Description" and has transmitted comments on this program in a letter to the Director, DRD&T, dated April 14, 1967.

A copy of this letter is attached.

Sincerely yours,

/s/

N. J. Palladino
Chairman

Attachment:
Letter from N. J. Palladino, Chairman, ACRS to Mr. Milton Shaw, Director, DRD&T, dated April 14, 1967.

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Mr. Milton Shaw, Director
Division of Reactor Development & Technology
U. S. Atomic Energy Commission
Washington, D. C.

Dear Mr. Shaw:

The ACRS has reviewed the draft document entitled "Water-Reactor Safety Program, Summary Description" and can provide some comments as requested in your letter of February 14, 1967. The comments are not intended to provide a complete review of the document and, in part, will serve to amplify recommendations made in previous reports by the Committee to the Commission on the Reactor Safety Research Program.

1. It appears that in safety studies (analytical and experimental) on emergency core cooling systems, insufficient attention has been given to effects produced by distortions from original fuel element geometry. Information is particularly lacking on the mode of fuel element failure in loss-of-coolant accidents and the importance of such failure. Information is also lacking on the consequences of particl malfunctioning of emergency core cooling systems, such as maldistribution of flow or delay in initiation.

2. It appears that more effort should be devoted to gaining an understanding of modes and mechanisms of possible pressure pulse generation as a result of mixing of hot fuel and coolant. The possible pressure pulses due to disintegration of part of a subassembly, as well as those which could result in the unlikely event of large scale core melting are of considerable interest.

3. It is not clear that substantial early effort will be devoted to gaining an understanding of the various mechanisms of potential importance in describing the course of events following large scale core melting, including steam explosions and hydrogen generation. Information should be gained which would provide a better foundation for assessing the possibilities of coping with large scale core melting.

The ACRS recommends that all of the above areas of safety research be prosecuted vigorously.

Sincerely yours,

/s/

N. J. Palladino
Chairman