



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555

OFFICE OF THE  
CHAIRMAN

November 23, 1982

The Honorable Edward J. Markey, Chairman  
Subcommittee on Oversight and Investigations  
Committee on Interior and Insular Affairs  
United States House of Representatives  
Washington, D.C. 20515

Dear Mr. Chairman:

This is in response to your letter of October 4, 1982 regarding a draft report entitled, "NRC Staff Evaluation of Pressurized Thermal Shock (September 13, 1982 Draft)" and a draft Oak Ridge National Laboratory report, "Pressure Vessel Thermal Shock at U.S. Pressurized Water Reactors: Events and Precursors, 1963 to Mid-1981" (May 1982).

The draft staff report is still a working draft. The September 13 draft was prepared by staff members and is presently undergoing review and comment by the various NRC Program Offices, the Committee to Review Generic Requirements, and the Executive Director for Operations, prior to submission for consideration by the NRC Commissioners. Additional drafts and revisions are to be expected as part of this process.

Under normal circumstances, I would expect us to provide copies of such a report to your Subcommittee once the report had undergone NRC management review and had been approved by the Commission. In the case of the draft pressurized thermal shock report, the staff wished to obtain the views of the Advisory Committee on Reactor Safeguards (ACRS), so that such views could be addressed in the submittal to the Commission. The draft report was provided to the ACRS for that purpose. Since the draft was to be discussed with an ACRS Subcommittee in a session open to the public, the Executive Director for Operations elected to place the draft report in the Commission's Public Document Room, even though it had not yet undergone the management reviews indicated above. Given these circumstances I regret that we did not provide copies to your Subcommittee at that time.

The NRC staff concluded in the draft report that there is no need for immediate modification of any operating pressurized water reactor. This conclusion was based on the analysis presented in the report and more basically on the theoretical and experimental information available. The Commission's Advisory Committee on Reactor Safeguards has supported this view in their reports dated June 7 and October 14, 1982. I am informed that the management reviews currently in progress are considering further the need for and benefits of insuring early implementation of flux reduction programs to reduce the rate of reactor vessel embrittlement at some operating facilities. I am also informed that this management consideration of possible early flux reduction measures is not based on a belief

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that the pressurized thermal shock risk is unacceptably high at this time but is based on a consideration of whether, with the passage of time, the flux reduction measures could be foreclosed as an effective remedy. In the case of one plant (H. B. Robinson), NRC staff management judges that some remedial actions will be needed within the next few years to ensure that the pressurized thermal shock risk remains within acceptable limits throughout its service life. Commissioner reviews will focus on these matters.

The Oak Ridge Report, to which you refer, is referenced in the draft NRC staff report, and the events discussed in it were considered by the staff (see discussion in Section 2.3 of the September 13, 1982 draft). Of all of the overcooling events considered by the staff, only eight actual events reached final temperatures of 350<sup>o</sup>F or less, and these were used by the staff in selecting a proposed screening criterion.

With regard to your comments on the staff's use of probabilistic risk assessment (PRA) methods, my understanding is that the staff used the PRA analysis only as one of the factors in reaching their engineering judgments on this issue. The staff states that their use of PRA in this instance is consistent with the Commission's policy statement on January 18, 1979 on this subject. The Commission will include a review of this use of PRA in its consideration of the staff's report. A separate letter on the subject of PRA is being prepared to reply to Chairman Udall's letter of October 1, 1982 to me, and you will receive a copy.

The events at Turkey Point, to which you refer, are not of the same type as the pressurized overcooling transients of concern in the pressurized thermal shock issue. The Turkey Point events are examples of incidents that have occurred (usually when the reactor is in the startup or shutdown mode of operation when the reactor coolant system is at low temperature) in which the system pressure is inadvertently increased sufficiently to cause concern for the possibility of brittle fracture in highly irradiated vessels. Because of this concern, in 1977 the NRC required licensees to upgrade administrative controls and install design modifications to further reduce the likelihood of occurrence of such overpressure transients and mitigate their consequences. The Turkey Point events were the result of shortcomings in the testing procedure for the overpressure mitigation system and valve misalignments. Although the staff believes that consideration of cold overpressure events does not affect its recommendations and conclusions regarding pressurized thermal shock events, I am informed that subsequent drafts of the staff report will address the relationship of these two related concerns.

In addition, your letter contains the following statement:

"...Comments by the NRC's own Advisory Committee on Reactor Safeguards (ACRS) about the use and misuse of probabilistic risk analysis (PRA) are particularly instructive in this regard:

'In truth, the PRAs cannot predict core melt probability  
...The claims for PRA concerning its ability to assess  
public safety risk are little more than a sham that will

hide the fact that the basis for safety will always depend on the judgment of a few individuals.'  
(September 15, 1982 ACRS letter to Palladino)"

I would like to note that the quote contained in your letter is not by the full ACRS, but rather from an attached additional comment by two ACRS members.

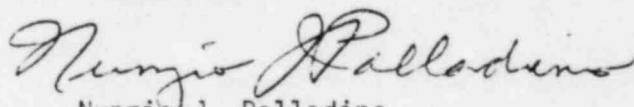
I would also like to point out that the ACRS letter of September 15th was a letter on the draft action plan for implementing the proposed safety goal. The Advisory Committee, as a Committee, agreed on and sent the letter to the Commission.

While the ACRS letter does criticize the action plan's suggestion of how PRA is to be used, the ACRS letter closes with the following:

"We recommend that a long-term approach to the performance of plant-specific PRAs for all plants be formulated. The schedule for and the complexity of each PRA should be developed with consideration being given to plant size, location, operating experience, and the contribution likely to result from the PRA."

Your letter also expressed views on operator training, the role of control systems in pressurized thermal shock transients, a demonstration of vessel annealing, and instrumentation to measure vessel temperature. The NRC staff will consider your comments in its ongoing review and revisions of the draft report. When the report has been submitted for Commission consideration, a briefing for you could be arranged if you would find it useful.

Sincerely,

  
Nunzio J. Palladino  
Chairman

cc: Rep. Ron Marlenee