

TENNESSEE VALLEY AUTHORITY

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OFFICE OF SECRETARY
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The Honorable Edward J. Markey
Chairman
Subcommittee on Oversight and
Investigations
Committee on Interior and
Insular Affairs
U.S. House of Representatives
Washington, D.C. 20515

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Dear Mr. Chairman:

Thank you for your response to my February 27, 1984 letter. We appreciate your concerns on this issue and welcome the opportunity to provide additional perspective on TVA initiatives in probabilistic risk assessment (PRA).

At about the time Browns Ferry was selected as an Interim Reliability Evaluation Program (IREP) study plant, TVA decided to perform its own risk assessment study of Browns Ferry. TVA recognized the use of risk assessment techniques in the nuclear safety decisionmaking process was likely to increase and that, as a nuclear industry leader, we should develop capabilities for these assessments. In addition, we recognized an independent study would provide an important comparison basis of the IREP program.

Let me assure you that TVA did not ignore the NRC's IREP report on Browns Ferry. We were of course concerned about its apparent findings and TVA engineers thus conducted an informal review of the Browns Ferry IREP report (NUREG CR/2802) when it was issued in July 1982. Our review revealed some significant variations between the plant design capabilities assumed in the report and the actual plant design. These variations would substantially alter the IREP results. For example, IREP did not consider the cross-tie between the decay heat removal systems on the three units at Browns Ferry, and it erroneously assumed that failure of a minimum flow valve to operate would result in a system failure. Our review was sufficient to convince us that had the report taken into account the actual plant design capabilities and configuration, it would have been able to conclude that Browns Ferry would meet the interim secondary safety goal on core-melt frequency. Engineers involved in the TVA study did not do a detailed review of the IREP study to ensure we did not compromise the independence of our own study. The TVA study will be completed later this year. We believe the comparison of these TVA and IREP studies will be a valuable step in the continued development of PRA techniques.

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With regard to the incident at Browns Ferry on February 14, 1984, the shutdown cooling valve which failed to open is part of a nonsafety operating mode of the Residual Heat Removal System. Safety analyses for the plant assume this function always fails for the purposes of accident evaluation. In fact, this valve has design features which will prevent it from being opened if an accident condition exists to ensure the shutdown cooling mode will not interfere with safety systems. Shutdown cooling is one of the normal methods for decay heat removal. The other method, the main condenser, remained operable throughout the event, allowing the plant to be brought to a cold shutdown condition. The IREP study requires failure of both normal systems plus the redundant, safety-grade residual heat removal systems as a precursor to a core melt. In light of these facts, we believe it is apparent why TVA does not consider any changes to the plant or its operation necessary in response to the February 14 event.

I gather that we both believe that probabilistic risk assessment must be used with caution. It can become a valuable tool in performing nuclear plant safety evaluations because such assessments can show where improvements are needed and can assist in evaluating the cost and the safety benefit of proposed improvements. However, PRA cannot supplant the traditional methods for safety analysis which use the knowledge and judgment of experienced specialists in nuclear safety analysis. Also, there is danger if too much credibility is given to the accuracy of specific numbers which result from PRA. The TVA program is aimed at providing a useful tool to improve safety analysis methods and to improve the safety of our nuclear plants without putting undue emphasis on the accuracy of specific numbers.

We believe that Browns Ferry is being operated well within safety requirements today and believe NRC agrees with this conclusion. But we are not satisfied and we are making an all-out effort to reduce the number of violations and risks. TVA is determined to be a leader in the advancement of safety at its nuclear facilities. We welcome the opportunity to provide input to your discussions on this issue and would be glad to answer any additional questions you may have.

Sincerely

S. David Freeman
Director

cc: The Honorable Nunzio J. Palladino ✓
Chairman
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