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Dr. William Kerr
c/o Dr. Paul Boehnert
Nuclear Regulatory Commission
Advisory Committee on Reactor Safeguards
Room 1044B
1717 H Street NW
Washington, D.C. 20555

Dear Bill:

This comment letter will be restricted to my observations following your subcommittee meetings of May 26 and 27 on NRC actions on ATWS. In light of the draft status of rulemaking information that we have from the NRC, a short review seems appropriate. Please call me if you want additional review on any particular item covered in the aforementioned meetings.

A reliability assurance program (RAP) appears to figure prominently in the NRC's approach to ATWS. Although I have not contributed to the NRC's ATWS planning in any way, let me remind you that ANL had a reliability assurance research program with the NRC for which I was program manager and for which renewed funding is expected. I do not believe this represents a conflict of interest, but I do want you to be aware of this.

It appears that the ATWS regulations that will be issued by the NRC will be a series of hardware modifications for each of the plants, with the specifics depending upon whether they were manufactured by Westinghouse, GE, B&W, or Combustion. The hardware fixes are to provide additional diversity and reliability to the scram functions. A reliability assurance program (RAP) is to be recommended in the Statement of Considerations with the current thinking being that if the industry does not successfully implement a RAP the NRC will legislate one, presumably several years from now. The RAP is to provide greater management controls over the safe operation and maintenance of the reactor trip system, something the NRC task force concluded was sorely missing at Salem.

Regarding the hardware fixes, there appears to be many remaining questions re the requirements on the ATWS modifications. For example, the alternate rod injection system may or may not be safety grade with current thinking that it won't be because of the costs associated with seismic and redundancy qualifications. Clearly, these types of questions have to be answered before hardware fixes are put into the Code of Federal Regulations.

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Regarding the RAP, I perceive the lack of definition of such a program to be the main reason RAP will not be part of rulemaking but rather relegated to the Statement of Considerations. Lack of definition was the main industry complaint when a RAP was proposed by the NRC as part of the Hendrie rule to resolve ATWS. In the Generic Implications report (NUREG-1000, Vol. 1) it appeared that a RAP would only be implemented for the electrical portion of the scram system. Given the need for effective maintenance programs for all safety-important systems as evidenced by Salem, the NSAC-53 conclusion that HPCI and RCIC performance were better in plants with good maintenance, and the IREP results implying the importance of RHR valve failures in Browns Ferry risk, is this overly delimiting an industry need to an isolated, albeit important, subsystem? I also am not sure why the hardware in the reactor scram systems seems to be excluded from RAP considerations.

The point of the above paragraphs is to defend concern over putting too much "knee-jerk" emphasis on Salem and concentration on the RTS in specifying hardware and administrative (RAP) fixes for the ~14 year old ATWS issue. While the request for ATWS hardware fixes may or may not be appropriate, ACRS members and consultants have repeatedly suggested that preventing spurious full power scrams be given more NRC and industry attention. This suggestion does not seem to be addressed here. My prejudice against delimiting a RAP approach to the RTS is highlighted above. In short, the current NRC fix may be too narrow in scope.

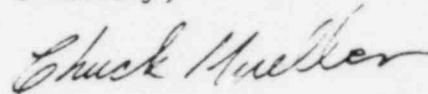
Although not key to the main thread of this letter, I'd like to mention a few items relevant to FAA, NASA and DOD RAPs that were discussed in the May 26 meeting. Probably the most important difference between maintenance personnel for the airline and nuclear industries is that airline maintenance people undergo FAA certification, implying both higher qualifications and associated prestige. Airline maintenance programs appear to be more formalized but the recent O-ring fiasco rather dramatically highlights that such programs are not infallible and that common cause failures are not unique to the nuclear industry.

It appeared to be the perception of some NRC people that NASA and DOD procurement specs routinely featured quantitative reliability requirements. While quantitative requirements are sometimes used, it appears that more often than not no quantitative requirements are imposed. Quantitative requirements impose higher procurement costs and this is the tradeoff. Obviously, many procured components or systems are so unique, especially in NASA programs, that quantitative requirements could not be feasibly demonstrated if they were imposed.

Discussions with Draper Laboratories, with whom ANL collaborated on RAP research and who have had extensive familiarity with major NASA and DOD programs, did lead us to conclude that the "trail of paper" involved in assuring that all parts or components are manufactured to the proper specs and for the proper operating environment is more stringently controlled in NASA and DOD programs, down to the smallest subcontractor.

The final comment involves some of the value/impact justification provided for the NRC fixes. Obviously the uncertainties in both risk reduction and cost make even "relative" comparisons strongly suspect. (I discussed this in previous ATWS review letters for the ACRS). Thus, the use of engineering judgement by NRC to impose additional restrictions on Westinghouse gives me no problems. The concern over the lack of relief capacity at CE and B&W plants expressed by other ACRS representatives did make me question what the "true" safety or risk difference between these plants and Westinghouse plants actually is and whether fixes to address this relief capacity problem should be evaluated.

Sincerely,



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CJM:bj

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