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Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Oconee Nuclear Station, Units 1, 2, 3
Comments on Pressurized Thermal Shock Study

On January 23, 2001, NRC and Duke Power met to review the preliminary results of the PTS PRA Analysis of Oconee Nuclear Station. There was significant discussion, both on details of the work and on the overall philosophy of the study. With regard to the details, Duke provided comments on the human actions portion of the work on 2/06/01.

The purpose of this letter is to provide documentation and clarification of the Duke position on the overall philosophy of the project. These are all issues we discussed at length during our meeting on 1/23/01.

Duke agrees with the overall philosophy of the PTS Review Project. We greatly appreciate the opportunity to participate in this project. The use of PRA analysis and insights should help to provide meaningful understanding of the importance of various PTS scenarios. However, based on the preliminary information provided at the 1/23/01 meeting, we feel there are three problem areas that should be addressed prior to completing the PTS analysis.

HRA Quantification- the determination of values used for various human actions is a subjective process. The process as described in the 1/23/01 meeting could be called an "expert panel elicitation." However, when there were disagreements by the experts, generally the most conservative value was chosen. This is contrary to industry accepted methods of expert panel review. Since the PRA models attempt to characterize the plant using best estimate information, the above method will lead to overly conservative results. There should not be any reluctance to use best estimate PRA values.

Thermal-Hydraulic Model Review- the model used for Oconee has not been reviewed by Duke. Obviously, an accurate model of the plant is required to achieve valid results. Duke has an experienced safety analysis group that can provide valuable feedback on the NRC model. We believe that a Duke review of this work is a critical part of our overall endorsement of the project.

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T-H Binning- this is the topic that generated the majority of the discussion at our 1/23/01 meeting. There appears to be a mismatch between the PRA sequences and the T-H scenario chosen to apply to them. The results, again, may be overly conservative. They may predict possible PTS scenarios that, in reality, would not occur. Apparently, there are too few thermal hydraulic scenarios. This results in "binning" of various PRA sequences into T-H bins that are not exactly applicable. The problem is most clearly demonstrated relative to human actions. For instance, a particular thermal-hydraulic computer run may have been performed assuming no operator action. The PRA work attempts to define the probabilities for that human action at various time steps (i.e., 5, 10, and 15 minutes). To then apply T-H results for no action to scenarios where action is expected, results in inconsistent and overly conservative predictions of PTS behavior. During our meeting Duke suggested the use of the existing T-H runs along with hand calculations of various sub-cases as an alternative to running many additional T-H evaluations. The more cases that can be generated, the greater the likelihood that a good match can be found.

In conclusion, we believe that the goals and general direction of the PTS study are appropriate. We will continue to actively participate in the work. However, the problem areas above need to be resolved in order to achieve meaningful results that can be endorsed by us. If you need further clarification on any of the above, please call.



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