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MEMORANDUM

To: Glen Kelly

From: Bob Raftery

This is in response to your questions regarding the generation of minimal cut sets in performing the ABWR fire risk analysis and justification for why GE did not use importance measures to analyze what were the most important features from the standpoint of fire risk.

The EPRI FIVE methodology upon which GE based its fire risk evaluation is a conservative screening analysis technique. In performing the fire risk evaluation, GE incorporated additional conservatisms and then demonstrated that this very conservative application of the EPRI FIVE methodology would still satisfy the CDF screening criterion of 1.0E-06 per year. Although the FIVE methodology as modified and applied by GE used CAFTA, and cut sets were generated for each of the five fire scenarios evaluated, these were not combined in a composite file of cut sets to produce an overall fire "CDF", nor were importance measures developed on such a basis. This was not done since the assumptions used to obtain the numerical values were exceedingly conservative and were defined so that they would be bounding values for divisional, control room, and turbine building fires. Therefore, summing the fire scenario frequencies does not produce a fire "CDF" which can be meaningfully compared to the ABWR internal event core damage frequency. Similarly, importance measures developed from such a compilation would be highly questionable since large and indeterminate biases could be introduced by the bounding nature of the analysis.

Therefore, capabilities and features important to safety were identified from the fire risk analysis as those required to meet the FIVE screening criterion and which were not identified as important from evaluation of the Level 1 internal event PRA. These included the capability to operate RCIC from outside the control room, providing control for four SRVs at the remote shutdown panel, and isolation of the three safety divisions from each other (including necessary support systems) by three hour rated fire barriers.

Bob Raftery

R. P. Raftery