

Integrating Deterministic and Probabilistic Safety Assessment to Decrease Risk & Energy Consumption in a Typical PWR

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Abstract : Integrating deterministic and probabilistic safety assessment (IDPSA) is one of the most commonly used issues in the field of safety analysis of power plant accident. It has also been recognized today that the role of human error in creating these accidents is not less than systemic errors, so the human interference and system errors in fault and event sequences are necessary. The integration of these analytical topics will be reflected in the frequency of core damage and also the study of the use of water resources in an accident such as the loss of all electrical power of the plant. In this regard, the SBO accident was simulated for the pressurized water reactor in the deterministic analysis issue, and by analyzing the operator's behavior in controlling the accident, the results of the combination of deterministic and probabilistic assessment were identified. The results showed that the best performance of the plant operator would reduce the risk of an accident by 10%, as well as a decrease of 6.82 liters/second of the water sources of the plant.

Keywords : IDPSA, human error, SBO, risk

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