

## The Features of Probabilistic Safety Assessment in Standard Design of Korean Next Generation Reactor

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### Abstract

As the usefulness of the Probabilistic Safety Assessment(PSA) has been proved during the Individual Plant Examination(IPE) implementation and other PSAs, it has been recommended to use the PSA as a design tool to optimize the plant design in terms of the safety. And, there are several characteristics of KNGR PSA which is different from those of existing plants in technical contents, analysis scope or its purpose. This paper presents some experiences of KNGR specific PSA interaction in view of on-going designs such as periodic system analyses and their design feedback, human reliability analysis(HRA) and human factor engineering(HFE) for advanced control room and man-machine interface design, and severe accident mitigation design and probabilistic assessment to confirm the technical feasibility for assuring the accident mitigation prioritization of system. Also, it explains design specific analysis results of external event and design reliability assurance program(D-RAP) concept to assure the safety of PSA that has been applied at the stage of the basic design of the KNGR. This paper gives some example and guidance for the future PSA to be performed in relation to vigorous risk informed application (RIA).