

## CFD Simulation for Flow Behavior in Boiling Water Reactor Vessel and Upper Pool under Decommissioning Condition

**Authors :** Y. T. Ku, S. W. Chen, J. R. Wang, C. Shih, Y. F. Chang

**Abstract :** In order to respond the policy decision of non-nuclear homes, Tai Power Company (TPC) will provide the decommissioning project of Kuosheng Nuclear power plant (KSNPP) to meet the regulatory requirement in near future. In this study, the computational fluid dynamics (CFD) methodology has been employed to develop a flow prediction model for boiling water reactor (BWR) with upper pool under decommissioning stage. The model can be utilized to investigate the flow behavior as the vessel combined with upper pool and continuity cooling system. At normal operating condition, different parameters are obtained for the full fluid area, including velocity, mass flow, and mixing phenomenon in the reactor pressure vessel (RPV) and upper pool. Through the efforts of the study, an integrated simulation model will be developed for flow field analysis of decommissioning KSNPP under normal operating condition. It can be expected that a basis result for future analysis application of TPC can be provide from this study.

**Keywords :** CFD, BWR, decommissioning, upper pool

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