

**Preliminary Safety Evaluation of KALIMER Under Transient Overpower Accident**

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**Abstract**

*The Korea Atomic Energy Research Institute (KAERI) is developing KALIMER (Korea Advanced Liquid Metal Reactor), which is a sodium cooled, 150 MWe pool-type reactor. The safety design of KALIMER emphasizes accident prevention by using passive processes, which can be accomplished by the safety design objectives including the utilization of inherent safety features to eliminate the need for diverse and redundant engineered safety systems.*

*KALIMER utilizes the intrinsic negative reactivity feedback effect which is one of the most important inherent safety features of liquid metal reactors (LMRs) under hypothetical situations where reactor scram failures are postulated. In order to assess the effectiveness of the inherent safety features in achieving the safety design objectives, KAERI has been developing the reactivity feedback models for the system-wide LMR transient analysis code SSC-K.*

*The purpose of current work is to verify the logic of the reactivity feedback models developed and to evaluate the inherent safety characteristics of preliminary KALIMER conceptual design using a consistent set of reactivity coefficients for SSC-K simulations. This paper summarizes the preliminary analysis results produced by the SSC-K code for the transient overpower accident.*