

**Transient Analysis of Charging System with Centrifugal Charging
Pumps**

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Abstract

The CARD (CVCS Analysis for Design) code has been developed for the transient analysis of the letdown and charging system of Korea Standard Nuclear Power Plant. The computer code has been already verified and validated by comparing with actual test results. Analyzed in this paper are the flow and pressure transients in the charging line. The sensitivity studies are performed to select the acceptable control parameters of charging line backpressure controller and seal injection flow controller. In addition, the seal injection system transient is evaluated for the pressurizer auxiliary spray operation. It is shown that the charging line backpressure controller control parameters yield a significant effect on the charging system stability. The results obtained from this study will be used to verify the system design and to select the optimum control parameters for the charging system with centrifugal charging pumps.