

Abstract Submitted
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Comparison of passive safety and the safety injection systems under loss of coolant accident M. TAHIR, Texas Tech University, Lubbock, TX and PIEAS Pakistan, I.R. CHUGHTAI, PIEAS, Pakistan, M.A.K. LODHI, Texas Tech University, Lubbock, Texas — A Passive Safety Injection System (PSIS) and a Safety Injection System (SIS) with reference to a typical pressurized water reactor have been studied. The performance of the PSIS has been analyzed for a large break Loss of Coolant Accident (LOCA) in one of the cold leg of reactor coolant system. The SIS is a huge system consisting of many active components needing electrical power to perform its role of core cooling as high head safety injection system under designed accidents. The PSIS consist of passive components and performs its function automatically under gravity. In a reactor transient simulation, the PSIS and the SIS are tested for large break LOCA under the same boundary conditions. Critical thermal hydraulic parameters of both the systems are presented. Results obtained are approximately similar in both cases. Nevertheless, the PSIS would be a better choice for handling such scenarios due to its reduced and passive components.

M.A.K. Lodhi
Texas Tech University

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