



## Frontier between medium and large break loss-of-coolant accidents of pressurized water reactor

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Received 7 November 2017; Accepted 4 February 2018

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### ABSTRACT

In order to provide the probabilistic safety assessment with more realistic condition to calculate the frequency of the initiating event, a study on the frontier between medium-break and large-break loss-of-coolant accidents has been performed by using best-estimate thermal-hydraulic code, TRACE. A methodology based on the combination of the essential safety features and system parameter has been applied to the Zion nuclear power plant to evaluate the validity of the frontier utilized for the probabilistic safety assessment. The peak cladding temperature has been chosen as a relevant system parameter that represents the system behavior during the transient. The results showed that the frontier should be extended from 6 to 10 in based on the required safety functions and system response.

*Keywords:* Loss-of-coolant accident; Frontier; Probabilistic safety assessment; Initiating event

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