

# A Framework for Evaluating Hydrogen Control and Management Strategies for a Large Dry Containment

Seung Dong Lee, Kune Yull Suh  
Seoul National University

Moosung Jae  
Hansung University

Jae Hong Park  
Korea Institute of Nuclear Safety

## Abstract

A framework for evaluating hydrogen control and management strategies is introduced in this paper. A new measure for evaluating the strategies is incorporated in the framework. The intentional burning strategy is a well-known and available option to maintain plant integrity. This strategy in the small-break loss-of-coolant accident (LOCA) sequence, which was reported to be one of the most threatening accident sequences in a reference plant, is selected as an example for illustrating the proposed framework. The framework involves development of decision trees associated with the hydrogen control strategy, data analysis of occurrence probability and the consequence (hydrogen concentration), the MAAP4 code calculations, and evaluation of the decision trees. The results are presented in terms of hydrogen concentration curves with respect to frequencies. It is shown that the proposed framework can be applied to evaluation of any other accident management strategy in any sequence.