

Thermal hydraulic Safety Analysis of End Fitting Failure with Failure of ECCS
for Wolsong NPP Unit 1 Loaded with CANFLEX-NU

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Abstract

This study was done as a part of the safety analysis for full CANFLEX-NU loaded core in Wolsong NPP unit 1. End Fitting Failure with the loss of emergency core cooling system(ECCS) was analyzed in the view of reactor thermal hydraulic trend and fuel channel integrity. Loop isolation failure has no impact on fuel channel integrity and thermal hydraulic behaviors are similar to those with loop isolation available. For ECC injection failure, PHTS inventory and pressure decrease, and the fuel channel integrity may be damaged due to the loss of fuel channel cooling. For the ECC injection failure with the loss of steam generator crash cooldown(SGCC), most behavior are similar to the case with SGCC available, except that PHTS depressurization rate is slower than for only the ECC injection failure.

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A Review on 3-D CFD Model Development for the CANDU-6 Moderator
Analysis in KAERI

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Abstract

A 3-D CFD model has been developed for predicting moderator temperature in the vicinity of the Calandria tubes under LOCA transients. Using the CFD model, a transient moderator analysis has done for the 35% RIH(Reactor Inlet Header) Breaks with loss of ECC(Emergency Core Cooling) Injection. During 40 sec after the break, local maximum subcooling near N17 channel was well bounded over 30°C. Several aspects of future improvements on the CANDU moderator analysis model are mentioned, which include grid structure, hydraulic resistance correlation, and buoyancy force approximation. Some experimental works are also suggested.