

A Study on CANDU Model Assessment of RELAP5/CANDU using
RD-14M B9401 Multi-channel RIH Break Experiment

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Abstract

B9401 experiment, performed in RD-14M[1] multi-channel facility, was analyzed using RELAP5/MOD3 and RELAP5/CANDU and compared with experiment results. The RELAP5/CANDU code has been developed since 1998, based on RELAP5, in order to have auditing tool of CANDU NPP. The RELAP5/CANDU code is under developing and they have not been assessed much for a CANDU reactor. Therefore, this study has been initiated with an aim to identify the code applicability in a CANDU reactor by simulating some of the tests performed in the RD-14M facility and to get the assessment results for RELAP5/CANDU code. The RD-14M test facility at Whiteshell Nuclear Research Establishment is a full-scale multi-channel pressurized-water loop. The RELAP5/MOD3 and RELAP5/CANDU analyses demonstrate the code's capability to predict reasonably the main phenomena occurred during the transient, in qualitative view. In quantitative view, the RELAP5/CANDU[4] predicted better than that of RELAP5. In the case of experiment that the stratification in fuel channel is dominant, it is expected that RELAP5/CANDU can give more accurate result than RELAP5.