MAAP CANDU SIMULATION OF SEVERE ACCIDENTS IN DARLINGTON NUCLEAR GENERATING STATION

M. Kwee, M. Choi, R. Leung, S.G. Lie

Ontario Hydro, 700 Unioversity Ave. Toronto M5G 1X6, Canada

ABSTRACT

MAAP CANDU is an integrated CANDU nuclear plant simulation tool in response to a series of postulated severe accident sequences.

This paper presents the results of MAAP CANDU simulations of a series of severe accident sequences at Darlington Nuclear Generating Station (DNGS) leading to severe core damage states.

The accident scenarios presented originate from :

1. Loss of Coolant (LOCA) coincident with the unavailability of the Emergency Coolant Injection System (ECIS) and a total loss of electrical and backup power.

2. Loss of Reactivity (LOR) Control accident with impairment of both Shutdown System (SDS1 and SDS2) .

The timing of major events and radiological consequences in terms of release source terms are discussed.

It is concluded that the DNGS plant can withstand the challenges for many hours and minimize the radiological release into the environment.