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Dose Evaluations with SNAP/RADTRAD for Loss of Coolant Accidents in a BWR6 Nuclear Power Plant

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Abstract : In this study, we build RADionuclide Transport, Removal And Dose Estimation/Symbolic Nuclear Analysis Package (SNAP/RADTRAD) model of Kuosheng Nuclear Power Plant which is based on the Final Safety Evaluation Report (FSAR) and other data of Kuosheng Nuclear Power Plant. It is used to estimate the radiation dose of the Exclusion Area Boundary (EAB), the Low Population Zone (LPZ), and the control room following 'release from the containment' case in Loss Of Coolant Accident (LOCA). The RADTRAD analysis result shows that the evaluation dose at EAB, LPZ, and the control room are close to the FSAR data, and all of the doses are lower than the regulatory limits. At last, we do a sensitivity analysis and observe that the evaluation doses increase as the intake rate of the control room increases.

Keywords : RADTRAD, radionuclide transport, removal and dose estimation, snap, symbolic nuclear analysis package, boiling water reactor, NPP, kuosheng

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