

XENON LOAD ANALYSIS FOR CANDU-6 WITH DUPIC FUEL

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Abstract

Xenon load for a CANDU 6 reactor with DUPIC fuel has been studied. Xenon property constants were generated by WIMS-AECL code and the xenon load was calculated by RFSP code with a 3-dimensional full core model. Validation calculation has shown that the xenon load with the xenon constants from WIMS-AECL code is predicted within 2% compared to that with the xenon constants from POWDERPUFS-V code. Also, the xenon load has been calculated for various reactor power level changes and reactor shutdown conditions. The impact of the xenon load on the reactivity devices were investigated. Calculation results have shown that the xenon load of CANDU 6 loaded with the DUPIC fuel is much lower than that loaded with standard 37-element natural uranium fuel. Also, it was found that the reactivity devices can control the xenon load in the CANDU 6 reactor with the DUPIC fuel.