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Nuclear Fuel Burn-Up Credit for Criticality Safety Justification of Spent Nuclear Fuel Storage Systems

Burn-up credit analysis of RBMK-1000 and WWER-1000 spent nuclear fuel accounting only for actinides is carried out and a method is proposed for actinide burn-up credit. Two burn-up credit approaches are analyzed, which consider a system without and with the distribution of isotopes along the height of the fuel assembly (FA). Calculations are performed using SCALE and MCNP computer codes.
The research results are potentially important for the justification of nuclear safety of storage and transportation of spent nuclear fuel and can provide a technical basis for extending the use of this method for calculating such systems.
Keywords: spent nuclear fuel, SCALE and MCNP computer codes, burn-up credit.