V. V. Soloviov, E. O. Lebedev

CALCULATIONS OF THE NUCLIDE COMPOSITION OF SPENT NUCLEAR FUEL RBMK-1000 FOR VERIFICATION COMPUTER MODULE SCALE-6

The article presents the calculation of the nuclide composition of spent nuclear fuel RBMK using modules TRITON/T6-DEPL and ORIGEN-ARP of modular code system SCALE-6 and comparison with the experimental nuclide composition. In the analysis of the results of calculations and comparison with experimental data were considered only actinides, which constitute 99 % of the mass of spent nuclear fuel. The calculation of the nuclide composition of the inner and outer rings of fuel rods, and its combined value were performed. The discrepancy with the experimental data on isotopes ^{235}U, ^{239}Pu, ^{241}Pu, which are major contributors to the effective neutron multiplication factor, does not exceed 22 %. The design model which was created in this paper can be used to calculate the nuclide composition of the fuel of RBMK-1000 using modular code system SCALE-6.

Keywords: nuclide composition, spent nuclear fuel, RBMK-1000, modular code system SCALE.