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Burnup Effects of MOX Fuel Pincells in PWR

- OECD/NEA Burnup Credit Benchmark Analysis -

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Abstract

The burnup effects were analyzed for various cases of MOX fuel pincells of fresh and irradiated fuels by using the HELIOS, MCNP-4/B, CRX and CDP computer codes. The investigated parameters were burnup, cooling time and combinations of nuclides in the fuel region. The fuel compositions for each case were provided by BNFL (British Nuclear Fuel Limited) as a part of the problem specification so that the results could be focused on the calculation of the neutron multiplication factor. The results of the analysis show that the largest saving effect of the neutron multiplication factor due to burnup credit is 30 %. This is mainly due to the consideration of actinides and fission products in the criticality analysis.