



Impact of Replaced Fuel Rods on the Nuclear Parameters of the NPP Krško Fuel

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On occasion, during routine operation of the plant or handling of fuel assemblies, damage may occur to individual fuel rods within the assemblies of the core. Mechanical features of NPP Krško fuel assemblies permit the repair of assemblies by replacement of the damaged fuel rods. Assembly repair could be economical, especially if the low burnup fuel is damaged. However, it has to be shown that the use of the reconstituted assemblies is safe for the operation of the plant.

Usually, solid stainless steel rods are used as filler rods. These rods affect reactivity and local power peaking factors due to the redistribution of the power within the assembly. The most important nuclear parameters of the NPP Krško fuel are examined:

- local power peaking factors
- reactivity change
- moderator temperature coefficient
- Doppler temperature coefficient
- boron worth
- control rod worth

where up to three filler rods per assembly are considered.

Keywords: PWR, damaged fuel, reconstitution, power distribution, reactivity coefficients