CFD Modeling of Transient Fluid-flow During LOCA Event in a VVER440/213 Reactor

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Abstract. This article focuses on the modeling of the mixing processes of this cooling stripe and their effects on the RPV wall in a VVER440/213 Russian type PWR. The mixing processes are modeled in a transient thermo-hydraulic analysis which models the mixing of the coolant flows in the reactor pressure vessel and results in the overtime temperature and pressure fields within the RPV [1]. The analysis results show that the cooling stripe is not stationary. The turbulent mixing causes an unstable oscillatory motion of the cold stripe which has a notable effect on the RPV wall temperature distribution.