



## NPP Krško Approach to Pressure Locking and Thermal Binding in Motor Operated Valves

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Pressure locking and Thermal Binding are two different but related physical phenomena, which under certain conditions may prevent the opening of some types of Motor Operated Valves.

US Nuclear Regulatory Commission (NRC) informed and gave guidance for preventing pressure locking and Thermal Binding (PL/TB) phenomena in GL 89-10 "Safety-Related Motor-Operated Valve Testing And Surveillance", and its Supplement 6. Further action has been required by issuing GL 95-07 "Pressure Locking And Thermal Binding Of Safety-Related Power-Operated Gate Valves", that required evaluation of operational configurations of all safety-related power operated gate valves for susceptibility to PL/TB. Corrective actions are required for susceptible valves that shall assure performance of safety function within plant licensing bases.

NPP Krško (NEK) first addressed this issue through the analysis of the MOV valves that were included in the NEK MOV program. This approach resulted with 31 valves in Krško NPP being found as susceptible to TB, 21 of which to both TB and PL.

Subsequently, a more detailed analysis was performed, which took into account realistic operational parameters and detailed evaluation of likely scenarios. This produced a list of 8 valves susceptible to Pressure Locking, and another 8 susceptible to Thermal Binding.

Methods used and results produced are the subject of this paper.

*Keywords: nuclear power, pressure locking, thermal binding, motor operated valve*