# RELAP5/MOD3.2 ANALYSIS OF TRIP OF ONE MCP AT KOZLODUY NPP UNIT 6

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ABSTRACT

This paper discusses the results of the thermal-hydraulic investigations of the trip of one MCP at Unit 6, Kozloduy NPP. This investigation is a process that compares the analytical results obtained by the RELAP5 computer model of the VVER-1000 against the experimental transient data received from the Kozloduy NPP Unit 6. The RELAP5/MOD3.2 computer code has been used to simulate the trip of one MCP in a VVER-1000 Nuclear Power Plant (NPP) model. A model of the Kozloduy Unit 6 has been developed for the systems thermal-hydraulics code RELAP5/MOD3.2 [1]. This model was developed at the Institute for Nuclear Research and Nuclear Energy – Bulgarian Academy of Sciences (INRNE-BAS), Sofia. The model development and validation has focused on the applicability of RELAP5 to this type of transient. This paper presents a summary of the effort involved in defining a RELAP5 validation benchmark problem based on operational data from Kozloduy NPP and performing the analysis. The transient demonstrates the capability of NPP Unit 6 to reduce reactor power from one level to an other (lower power level) in case of losing one MCP. Reactor power was reduced from 82% to 67% during the transient without any need to initiate a scram. The comparisons between the RELAP5 results and the test data indicate good general agreement. This report was possible through the participation of leading specialists from Kozloduy NPP and with the assistance of Argonne National Laboratory (ANL) and Idaho National Environmental Laboratory (INEL), under the International Nuclear Safety Program (INSP) of the United States Department of Energy. The U.S. Government makes no endorsement of the results of this work.