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**Research Article**

**Natural Circulation in the ATUCHA-I PHWR Nuclear Power Plant**

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**Abstract**

A systematic study of natural circulation (NC) in a postulated, variable power fractions has been performed for a nuclear power plant operating reactor, cooled and moderated by heavy water. The analysis seems nuclear power plant (NPP), of similar design and nearly 745 MWe, the code used to perform the simulations. Results obtained are presented. The trends obtained fit in the expected limits for integral test facilities of a simplified analysis to scale single and two-phase core flow obtained, which permits predicting NC core mass flow rate (CMFR) single-phase NC flow, using a documented plant transient, showing pressurizer size on the predicted evolution curve in the NC flow mass

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