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IMPROVING THE EFFICIENCY OF EXISTING WATER PROCESS TANKS USING FLOW THROUGH CURVES (FTCs) AND MATHEMATICAL MODELS

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ABSTRACT

The process efficiency of existing water tanks can be dramatically increased by performing simple geometrical modifications to improve flow conditions and increase the actual detention time. In the present work, the tank of Agios Stefanos, a significant component of the water supply system of the region of Attica (Greece), is examined. The geometry of the tank is modified, by placing an internal wall. To assess and quantify the effect of this modification, the shapes and the characteristics of the Flow Through Curves (FTCs) of the initial and 3 alternative modified geometries are compared. The FTCs are not derived experimentally, but computationally with a verified mathematical model. The alternative with the best FTC characteristics is proposed for construction.