ABSTRACT

Clean water is one of the important human needs. In fulfilling these needs, a good clean water distribution system is needed, especially in an institution with various activities in it. Planning, designing, and managing pipelines to distribute water must be done well. One component of the water distribution system, the pipe, can affect the use of water pumps needed to meet the needs of clean water. Telkom University has three areas of clean water distribution. In Region III, 6 water pumps were used to distribute water to 18 buildings. Simulation study is a method commonly used to analyze problems related to the field of fluid mechanics. One simulation method used to analyze problems in the flow of water pipe networks is CFD (Computational Fluid Dynamics). To obtain a better water distribution system design, simulations are carried out to analyze the value of water discharge and head loss after changes have been made to the pipe network. The study was conducted by creating a water distribution network model in WaterCAD software. The results of the simulation and calculation of hydraulic analysis of pipe changes 65 mm (2.5 inch) to 100 mm (4 inch) and pipes 50 mm (2 inch) to 75 mm (3 inch) can increase the average discharge of water entering the roof tank, decreasing the average headloss pipe, and minimizing the operation time of the water pump.

Key Word: Water, water distribution, pipe, pump, headloss, WaterCAD