

ABSTRACT

The availability of clean water is one of the important things for human survival. On a global scale, water demand is expected to increase significantly. Telkom University is one of the institutions that use clean water in fulfilling daily activities. In this case Telkom University needs a good water distribution process. The use of pipes as a means of conducting flow in the distribution system and water treatment can lead to loss of energy (Head Loss). One of the changes that can affect the water flow and headloss on the pipe is to increase the diameter of the pipe based on appropriate field conditions. The CFD method allows users to analyze hydraulic speeds, evaluate hydraulic performance, calculate local losses on piping systems, and predict variations of flow discharge. EPANET 2.0 is the software that describes hydraulic simulations flowing in a pipeline. In the present study changes occurred in the diameter of the existing pipe, with the initial state measuring 40 mm (1.5 inch) became 65 mm (2.5 inch) and also the initial pipe size 50 mm (2 inch) became 65 mm (2.5 inch). This affects the water debit and headloss in the water flow so that it can affect the pump time. One example is the existing water flow measuring 8.14 liters / second became 9.18 liters / sec and also with the same pipe having an existing headloss of 1.2 m to 0.4 m size for the proposal design. This can affect the efficiency of the entire pipeline network II in Telkom University.

Keywords: Water distribution, headloss, CFD, EPANET 2.0