SIMULASI DISTRIBUSI AIR BERSIH (Case Study : Sungai Tenang Village, Sijunjung District, West Sumatera)

Vivi Anggraini[1] Puji Utomo[2]

Program Studi Teknik Sipil Fakultas Sains dan Teknologi Universitas Teknologi Yogyakarta;
e-mail:[1]vivianggraini971@gmail.com, [2]mr.pujiutomo@gmail.com

ABSTRAK

Kebutuhan air bersih terus meningkat setiap harinya, hal ini karena pertambahan jumlah penduduk yang berbanding lurus dengan kebutuhan air. Dalam memenuhi kebutuhan air bersih masyarakat Desa Sungai Tenang menggunakan air dari Pamsimas. Meskipun air bersih yang didapat oleh masyarakat masih sangat sedikit dikarenakan kinerja pelayanan distribusi yang belum optimal menyebabkan air sering tidak mengalir. Dengan demikian untuk mengatasi permasalahan air bersih di Desa Sungai Tenang, maka perlu dicari tahu penyebab dan memberikan solusi agar masalah air bersih di desa tersebut dapat teratasi dengan baik. Dalam penelitian ini penulis menggunakan bantuan *software Epanet* 2.0. Setelah dilakukan simulasi berdasarkan peta distribusi jaringan air bersih Desa Sungai Tenang, spesifikasi pompa tidak bisa memompa air secara optimal sehingga nilai *pressure* yang dihasilkan adalah *negative pressure* serta nilai *velocity* dan *headloss* masih belum memenuhi standar kriteria desain. Dilakukan penambahan *head* dan *flow* pompa menjadi 35 m dengan *flow* 100 LPS dan dilakukan perbesaran dan pengecilan diameter pipa sehingga nilai *velocity* dan *headloss* serta *pressure* memenuhi standar kriteria desain.

Kata kunci: Kebutuhan Air, Jaringan Distribusi, Epanet 2.0

CLEAN WATER DISTRIBUTION SIMULATION (Case Study : Sungai Tem Village, Sijunjung District, West Sumatra)

Vivi Anggraini[1] Puji Utomo[2]

Civil Engineering Study Program, Faculty of Science and Technology University of Technology Yogyakarta;
e-mail:[1]vivianggraini971@gmail.com, [2]mr.pujiutomo@gmail.com

ABSTRACT

The need for clean water continues to increase every day, this is due to the increase in population which is directly proportional to the need for water. In meeting the needs of clean water, the people of Sungai Bawah Village use water from Pamsimas. Even though the community gets very little clean water due to the suboptimal performance of distribution services, the water often does not flow. Thus, in order to overcome the clean water problem in Sungai Teang Village, it is necessary to find out the cause and provide a solution so that the clean water problem in the village can be resolved properly. In this study the authors used the help of EPANET 2.0 software. After conducting a simulation based on the distribution map of the clean water network of Sungai Lilin Village, the pump specifications cannot pump water optimally so that the resulting pressure value is negative pressure and the velocity and headloss values still do not meet the design criteria standards. The pump head and flow were added to 35 m with a flow of 100 LPS and the pipe diameter was enlarged and reduced so that the velocity and head loss and pressure values met the standard design criteria.

Keywords: Water Demand, Distribution Network, Epanet 2.0