INFLUENCE OF USING ROUGHING FILTER AND SLOW SAND FILTER FOR DRINKING WATER TREATMENT USING RAW WATER FROM INTAKE OF KARANGPILANG OBSERVED BY BIOLOGICAL ANALYSIS

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Abstract

Water treatment in PDAM Karangpilang still applies conventional systems, thus requiring more processing units, such as pre sedimentation, flashmix, slowmix, and sedimentation. During the rainy season, the turbidity of raw material increases, causing more coagulant demand so that water treatment become expensive. This research aims to find more effective water treatment system to minimize the use of chemicals, especially to reduce total coli and fecal coli. Roughing Filter (RF) and Slow Sand Filter (SSF) are utilized in this research.

This research used RF unit consisting of four variations of gravel media 25; 19; 16; 10 mm and SSF units with an average diameter of sand is 0.25 mm. The research also divided into three variations of filtration rate 0.125; 0.25; 0.5 m$^3$/m$^2$.hour.

The research obtained the best result of total coli and faecal coli reduction on RF unit variations filtration rate of 0.25 m$^3$/m$^2$.hour, where the average of efficiency are 88.23% and 85.59%, respectively. While SSF units variation filtration rate of 0.125 m$^3$/m$^2$.hour, where the average of efficiency are 99.95% and 99.96%, respectively.

Kata kunci: Roughing Filter, Slow Sand Filter, Total Coli, Faecal Coli