Modeling Fe and Mn Treatment Using Venturi Aerator System With Diameter of Venturi Pipe and Slope Slices of Venturi Pipe Variables

Name : Prasdiatma Pratama  
NRP : 3306 100 104  
Department : Environmental Engineering  
Supervisor : Abdu Fadli Assomadi, Ssi., MT.

Abstract

Groundwater is still a source of raw water which is used widely by the public. While there are still many ground water contains iron (Fe) and manganese (Mn) by high concentrations exceeding drinking water quality standards.

In this research, made modifications to the venturi aerator device with the best design in order to reduce the Fe and Mn are effective and have the simple design that can be easily applied in a household scale. Variables used in this research is the diameter of venturi pipe and slope slices of venturi pipe. Venturi pipe diameter using variation of 7.5 mm, 5 mm and 2.5 mm. While the slope slices of the venturi pipe using variation of 30\(^0\), 45\(^0\) and 60\(^0\). Samples of ground water used is groundwater that comes from Sedati area, Sidoarjo.

The results showed 7.5 mm diameter of venturi pipe has a reduction efficiency of Fe and Mn content of the best, that is 96.23\% to 94.91\% for Fe and Mn. Then the slope of the pipe venturi venturi pipe sections 30\(^0\) has efficiency decreased content of Fe and Mn best with maximum efficiency up to 96.23\% to 91.25\% for Fe and Mn.

Keywords: Reduction of Fe and Mn, venturi aerator, diameter of venturi pipe, slope slice of venture pipe.