

## ABSTRACT

Drilling in mining operations is used to make the blast hole. In the blasting activities, drilling is the first activity to be done for the provision of blasting holes, that will be filled with explosives to be exploded. Drilling rate influenced by physical properties of rocks, which water content variation will affect the drillability of tuff. Therefore, it is necessary to do a research in laboratory to know the influence of water on the drillability of tuff .

In the research of the influence of water content on the drillability , rock used is tuff , where the location of the sampling is taken on Semilir formation , in Gunungsari, Sambirejo Village , District of Prambanan , DIY. Tests were done in the laboratory include physical properties, ultrasonic velocity test, mechanical properties test, and also brittleness test and drill test. Brittleness test and drill test are accordance to Jukka Napuri (1988), will be done with variety of water content. The data obtained will be correlated and examined with drilling rate index parameter to determine the influence of the water on the drillability of tuff.

From the results of research conducted, tuff with water content 27,72%, 29,56%, 31,37%, 32,15%, and 35,10% result drilling rate index for 37,18, 41,16, 47,27, 47,49, and 53,81. Based on the analysis of data, it is known that the higher the water content of the tuff, the higher the value of the drilling rate index. The equation of  $DRI=1,460w$ . In other words, the higher the water content of tuff, tuff more easily penetrated by the penetration of the bit.