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Groundwater in Fractured Metasedimentary Rocks of Kenny Hill Formation

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Aquifer in metasedimentary rocks are not widely used because it is generally a poor aquifer. The objective of this study is to characterize the aquifer properties in metasedimentary rocks of Kenny Hill Formation. The study area is predominantly composed of interbedded phyllite and quartzite. The study is conducted by analyzing borehole logs and pumping test using constant discharge test, step drawdown test and recovery test. Borehole logs show that the area can be divided into two layers which is weathered layer on the top that acts as a confining layer and the bottom layer is fractured rock that acts as water bearing zone. Rocks in this aquifer has fractures of various depths. TW5, TW6, TW3 and TW7 is interpreted as confined aquifer and TW4 is interpreted as semi-confined aquifer. Pumping test data from five tubewells with depth ranging between 66 m to 135 m gives transmissivity, T value that ranges from 10.61 m^2/day to 10.12 m^2/day and is classified as low to moderate. Hydraulic conductivity, K value ranges from 0.02 m/day to 1.31 m/day and is classified as high. Aquifer productivity in the study area is classified as moderate based on average well yield of 5.6 m^3/hour. The presence of fractures in metasedimentary rocks in the study area makes it a relatively good aquifer.

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