

ABSTRACT

Indoasia Cemerlang company (IAC) is a coal company located in Sungai Cuka district, Tanah Laut regency, South Kalimantan which use surface mining method. IAC is planning on expanding its mining front to the southern region of the existing mining front. This new area of mining activities needs a research on hydrology and hydrogeology to ensure the mining activities plan.

The aim of the hydrogeology research to identify rainfall characteristics in research area, source of surface-flowing water into mining front, aquifer characteristics, hydrogeology parameters, source of groundwater and quality water in research area.

Research has been conducted at well investigation which are GT-02 and IN-33. The rainfall on research area is about 27.18 mm/hours. There are three catchment area. The rate of surface-flowing water derive from three catchment area which are the rate of surface-flowing water 1 is about 4.7 m³/sec, the rate of surface-flowing water 2 is about 3.7 m³/sec and the rate of surface-flowing water 3 is about 0.95 m³/sec. The rate of groundwater is about 0.10 m³/sec. The aquifer on research area consist of free aquifer and confined aquifer. The aquifer is classified as a low-moderate productivity aquifer. The hydraulic conductivity on each well investigation on research area as follow well investigation GT-02 is about $7,4 \times 10^{-7}$ m/sec and well investigation IN-33 is about $2,64 \times 10^{-6}$ m/sec.

The characteristics of the rainfall in research area classified as moderate rainfall. The source of groundwater classified as low-moderate source. It is influenced by the hydraulic conductivity. The relation between source of groundwater and hydraulic conductivity is linear function. The current of groundwater is flowing to North from South. Based on 2003 No. 113 Ministerial Decree stated that the result of pH parameters and manganese content on research area is higher than threshold value. The TSS result below the threshold value. The iron content result is also detected higher than threshold value.

From those data, it is concluded that the groundwater has a few effect due to mining activities because of the rate of hydraulic conductivity. It is also needed a comprehensive water management solution to overcome the water source problem from the research area.