

ABSTRACT

PT . Agro City Kaltim (ACK) is planning a coal mining activities with the open pit system . Relative to the current hydrogeological studies have been conducted to support the mining plan .

Hydrogeological research objective was to determine the hydrogeological parameters in sediment coal mining activities in the area of research . Studies were conducted on the hydrology , topography , surface water , aquifer characteristics and groundwater quality . In accordance with the purpose of research and mining time seven years (first year) , then the discussion will put emphasis on the sources and discharge of mine water at that location .

There are three sources of water that will be entered into the study site is rainwater , runoff , and groundwater seepage . Rainwater that enters the study site with rain intensity is equal to 18.78 mm / h so that the intensity of rainfall in the study area included in the classification of heavy rain .

There are four catchment in the study area is the first DTH , DTH II , DTH DTH III and IV which have respectively discharge $1,861 \text{ m}^3 / \text{sec}$, $1,265 \text{ m}^3 / \text{sec}$, $1,624 \text{ m}^3 / \text{sec}$ and $1,321 \text{ m}^3 / \text{sec}$. So that rainwater will flow directly into the study site is at $6.071 \text{ m}^3 / \text{sec}$ or $21855.6 \text{ m}^3 / \text{hour}$.

To obtain the parameters of the aquifer aquifer testing with slug test method on 4 drill holes . Based on the test results of the aquifer in the field with Slug Test method known value of permeability (k) with the value of each $2,645 \times 10^{-6} \text{ m} / \text{sec}$, $3,225 \times 10^{-7} \text{ m} / \text{sec}$, $1,345 \times 10^{-5} \text{ m} / \text{sec}$ and $2,769 \times 10^{-6} \text{ m} / \text{sec}$. Then a layer of the aquifer in the study area locations including the type of aquifer with moderate productivity .

Water testing was conducted to determine the water quality in the study area . 8 Tests were conducted on laboratory Balai Pengujian, Informasi Permukiman dan Bangunan dan Pengembangan Jasa Kontruksi (Balai PIPBPJK) Yogyakarta . From the test results of water samples in North Lisa Zone area of ground water quality is generally relatively well .