

ABSTRACT

The research was conducted on pit Trambesi PKP2B area of PT. Arutmin Indonesia constructed by PT. Jhonlin Baratama in Sungai Dua Districts, Tanah Bumbu Regency, South Kalimantan. The mine drainage systems used are mine drainage and mine dewatering. The water source comes from the rain and runoff water that flow into the pit then pumped out. When it has a high intensity rainfall, high volume of water in the coal mining area cannot be handled, this condition is caused by the water tunnel is clogged, moreover the sump doesn't have the right dimension and shape to accommodate the water on that area. Therefore, this research must be conducted to evaluate the mine drainage system on that pit area.

Based on the analysis of rainfall data in the year of 2007-2016, the period of repeated rain is 5 years and the intensity of rainfall is 34,02 mm per hour. The catchment area on that site has 200 ha which is divided into 6 areas.

There are two open channels exist to prevent the runoff water enter the loading pit area. The debit of runoff water is 4,04 m³/s, and the the 1st open channel has h = 1,3 m; d = 1,6 m; b = 1,8 m; B = 3,6 m; a = 1,8 m; $\alpha = 60^\circ$. And based on the calculation, the debit of runoff water which enter the 2nd open channel is 0,44 m³/s, it has h = 0,6 m; d = 0,7 m; b = 0,8 m; B = 1,7 m; a = 0,8 m; and $\alpha = 60^\circ$.

The sump volume is 68.404,21 m³. LCC-H 200-610 as the qualified pump is used on that sump in pit Trambesi, it has the pumping debit 735 m³/s and the impeller rotation is 1310 rpm. This pump will use HDPE pipe with the diameter is 15 cm and has 218 m long.