ABSTRACT

The research was conducted on pit Roto Selatan PT. Pamapeersada Nusantara site Kideco Jaya Agung in Batu Kajang Districts, Batu Sopang Regency, East 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, puddles in loading pit cannot be handled, and sump has became silted so it needs to get further study of influential sump capacity, pumping system and open channel so we can do propper water handling.

Based on the analysis of rainfall data in the year of 2007-2016 the precipitation plan is around 124,88 mm/day meanwhile the intensity of rainfall reached 22,22 mm/hour with a period of repeated rain 5 years and hydrology risk of 89,26%. Catchment Area I = 174,27 Ha, Catchment Area at the location of the research is devided into 3 regions namely Catchment Area II = 304,35 Ha, Catchment Area III = 192,2 Ha.

There are two open channels to prevent the runoff water enter the loading pit area. The debit of runoff water is 9,61 m^3/s, and the the 1st open channel has the data h = 1,89 m; d = 1,64 m; b = 2,17m; B = 4,35 m; a = 2,18 m; $\alpha = 60°$. The debit of runoff water which is 15,04 m^3/s, and the 2nd open channel has the data h = 2,23 m; d = 1,94 m; b = 2,57 m; B = 5,15 m; a = 2,58 m; and $\alpha = 60°$.

The sump volume required data is 682.046 m^3 and to drain runoff water for 2 days to sump Pit Roto Selatan needed 5 pumps units multiflow 420 EX and 10 booster pumps units Warman 8/6 AH with pumping debit 720 m^3/hours for 2 days.