

ABSTRACT

The study was conducted on pit 4 PT. Juya Aceh Mining. This pit is located in the village of Ie Mierah, District Babahrot, Southwest Aceh District, Aceh Province. Mining activities Bijih besi PT. Mining Aceh Juya system using open pit methods. Penyaliran system used is mine dewatering and mine drainage. Source water comes from rain water and runoff water is allowed to flow into the curuk, then removed by means of pumping. During the rainy season in PT. Juya Aceh Mining frequent inundation and flood water on the ground floor of the mine due to the volume of rainwater and runoff water that enters the mine site is quite large, as well as to drain the puddle requires quite a long time. Therefore, it is necessary to design the system in the mine penyaliran PT. Juya Aceh Mining.

Based on the analysis of rainfall data of 2005 - 2014, the plan was obtained precipitation is 204.93 mm / day, the intensity of rainfall is 38.51 mm / h with a 3-year return period rainfall and hydrology risk by 91.22%. Rain catchment area of research sites in two catchment, as follows: I = 0,028 km² DTH and DTH II = 0.063 km². Water discharge runoff at each catchment as follows: DTH I = 0.25 m³ / sec, and DTH II = 0.62 m³ / sec

To prevent that water does not enter the mining area then made an open channel around the street before entering Pit mine. Then to the water that goes into the mine pit 4 openings naturally piped into sinks. Open channel dimensions are as follows:

Channel: (East Pit 4): a = 0.53 m; b = 0.52 m; B = 0.96 m; h = 0.55 m; Pitting volume is calculated based on the amount of water entering and discharge pumping. Pitting pit 4 uses one pump Multiflo MFC-160 with total discharge of 208 m³ / h and 5214.4 m³ in volume, the water in the curuk is pumped into settling ponds. Settling ponds capable of precipitating 75.99% of the existing total suspended solids, sedimentation pond dredging time is 1 month 23 days.