ABSTRACT

The study was conducted at the pit-1 east PT. Bukit Asam (persero) Tbk. This pit is located in the village of Tanjung Enim, District Lawang Kidul, Muara Enim Regency, South Sumatera Province. Coal Mining activities at PT. Bukit Asam (persero) Tbk using open pit system with strip mine method. Water Management system that used is mine dewatering and mine drainage. water sources comes from rainwater and runoff water that intentionally flowed into the sump, and then flowed out by using of pumping system. When the rainy season in the PT. Megumy Core Award frequently flooded with water on mining front due to the volume of rainwater and runoff water into the mine site is quite large, but the sump volume is enough to accommodate incoming water. therefore needed a for the study of the existing mine water management system.

Based on the analysis of rainfall data of 2001 - 2014, obtained rainfall plan was 122,25 mm / day, rainfall intensity 21,20 mm / hours with a 5-year rainfall return period and hydrological risks of 89,26%. Catchment area at the research site is divided into four catchment, as follows: Catchment area I = 1,32 km², Catchment area II = 0,30 km². Runoff water debit in each catchment as follows: Catchment area I = 16,15 m³ / sec, Catchment area II = 1,02 m³ / sec.

To prevent that water does not enter the mining area then made an open channel around mine openings. Then for incoming water into mining frontat pit 1 east was naturally flow into the sump. Open channel dimensions are as follows:
Channel I: a = 1.13 m; b = 1.13 m; B = 2.27 m; h = 1.13 m; d = 0.98 m.
Channel II: a = 1.54 m; b = 1.54 m; B = 3.08 m; h = 1.54 m; d = 1.34 m.
Channel III: a = 0,82 m; b = 0.82 m; B = 1.64 m; h = 0.82 m; d = 0.71 m.
Ring channel: a = 1.25 m; b = 1.25 m; B = 2.51 m; h = 1.24 m; d = 1.08 m.

Sump volume is calculated based on the amount of water entering and pump debit. Pit-1 east sump uses two pumps, Sulzer 385 kW (engine 69) with a total debit of 708 m^3/hours and KSB VMP 385 kW (engine) with a total debit of 600 m^3/hours and sump volume of 85.301 m³.