

PLANNING MINE DRAINAGE SYSTEMS ON PIT 10 IN PT. ALAMJAYA BARA PRATAMA, DISTRICT LOAKULU, KUTAI KARTANEGARA DISTRICT, PROVINCE OF KALIMANTAN TIMUR

ABSTRACT

The implementation of open pit methods is inseparable from the problem of inclusion water of rainfall and groundwater seepage into the mining area (pit). This can lead to disruption of mining activities if not handled properly. In this case to cope with the incoming water at Pit 10 in PT Alamjaya Bara Pratama requires some study. It deals with the large number of pumps needed to tackle the incoming water each day.

Pit 10 has 2 Catchment Areas with each divided into 2 namely Catchment Area 10A, Catchment Area 10B with a total area of 105,77 Ha. The water runoff plan during the 5 years period. From these data the results obtained amounted to 22,3286 m³/day. Water discharge that enters the Pit 10 from inside and outside the Pit with a total discharge of 2,28 m³ / sec. And for total groundwater discharge that enters Pit 10 is 151.8 m³ / day.

To prevent potential water which enter through Pit 10, a design of channel to transfer out to the water from pit and pumping system to carry out the water from pit has been made.

The ways to prevent water entering the mining area can be minimized by creating a diversion channel. A diversion channel is made up of 3 segments. The first was made with a length of 1,238 m from the inlet elevation of 76 meters mdpl and outlet elevation at an elevation of 31 mdpl. the second made with a length of 248.16 m from the elevation of the inlet point of 53 mdpl and the outlet elevation at an elevation of 31 mdpl. And the third one is made with a length of 1,451 m from the inlet elevation 76 mdpl and outlet elevation at an elevation of 31 mdpl

The making of *sump* is placed at an elevation -30 masl at Pit 10, to accommodate the volume of incoming water of 21.825,39 m³ / day, therefore it is necessary to make *sumps* with dimensions of *sump* surface length 140,77 m, *sump* surface width 140,77 m, the base length of the *sump* is 48.51 m, the base width of the *sump* is 48.51 m, and the depth of 7 meters can accommodate the total volume of water.

For a control water entering the mining area can be done by determining the required pump. The pump used is a multiflow pump 420 E, with a total of 1 pump, with optimum discharge at Pit 10 of 880.54 m³ / hour with working hours of 22 hours / day.

The planned *settling pond* is made into 3 compartments. The dimensions of the *settling pond* for each compartment will use a 1: 3 ratio for the length and width. The length of each compartment *settling pond* is 155 m, width of 51,67 m with depth of 4 meters. And for the time of settling this pond full is for 88 days

Keywords : Rainfall, Discharge, Prevention, Countermeasures, Pump