

RINGKASAN

Penelitian dilaksanakan di *Pit* 3000 blok 9 area PKP2B PT. Bharinto Ekatama kontraktor PT. Pamapersada Nusantara yang terletak di Kabupaten Kutai Barat, Provinsi Kalimantan Timur. Operasi penambangan pada daerah penelitian dilakukan dengan sistem tambang terbuka metode *strip mine*. Salah satu kegiatan pendukung dalam kegiatan penambangan ialah penyaliran untuk mencegah masuknya air (*mine drainage*) dan mengeluarkan air yang masuk ke area penambangan (*mine dewatering*).

Air yang masuk ke area penambangan mengalir ke elevasi terendah yaitu ke dalam ceruk, kemudian dipompa keluar dari area penambangan menuju kolam pengendapan melalui saluran terbuka. Selain berfungsi untuk mengalirkan air, saluran terbuka juga berfungsi untuk mencegah air masuk ke area penambangan. Saat hujan intensitas tinggi, air dalam ceruk akan meluap. Hal tersebut dikarenakan dimensi ceruk yang terlalu kecil dan terjadi pendangkalan pada saluran terbuka.

Untuk mengoptimalkan fungsi sistem penyaliran yang diterapkan, maka penelitian ini akan mengkaji sistem penyaliran yang sudah ada dilapangan serta menghitung debit air tambang. Debit air tambang sendiri berasal dari air hujan dan air limpasan.

Metode penelitian yang digunakan dalam penelitian ini ialah studi literatur, observasi lapangan, pengambilan data, hasil pengolahan data, analisis pengolahan data, dan kesimpulan saran.

Berdasarkan analisis data curah hujan 10 tahun (2008-2017), diperoleh curah hujan rencana sebesar 135 mm/hari. Intensitas curah hujan 20,69 mm/jam dengan periode ulang hujan 3 tahun dan resiko hidrologi sebesar 86,83 %. Luas daerah tangkapan hujan pada lokasi penelitian dibagi menjadi 2 daerah tangkapan hujan berdasarkan arah aliran air limpasan. Daerah tangkapan hujan I = 140 Ha, debit air limpasan = 26.090 m³/jam. Daerah tangkapan hujan II = 94 Ha, debit air limpasan = 13.625 m³/jam

Rekomendasi dimensi saluran terbuka $h = 1,33$ m; $d = 1,16$ m; $b = 2,68$ m; $B = 1,33$ m; $a = 1,34$ m. Debit air limpasan yang masuk ke kolam pengendapan sebesar 4,34 m³/detik.

SUMMARY

The research was carried out in Pit 3000 block 9 area PKP2B PT. Bharinto Ekatama contractor PT. Pamapersada Nusantara is located in West Kutai District, East Kalimantan Province. Mining operations in the study area are carried out with the open pit mine strip method method. One of the supporting activities in mining activities is drainage to prevent mine drainage and remove water that enters the mine dewatering area.

The water that enters the mining area flows to the lowest elevation, namely into a niche, then is pumped out of the mining area to the settling pond through an open channel. Besides functioning to drain water, the open channel also serves to prevent water from entering the mining area. When the intensity of rain is high, the water in the niche will overflow. This is because the dimensions of the niche are too small and there is silting on the open channel.

To optimize the function of the applied flow system, this study will examine the existing drainage system in the field and calculate the mine water discharge. The flow of mine water itself comes from rainwater and runoff water.

The research method used in this study is literature study, field observation, data collection, data processing results, data processing analysis, and suggestion conclusions.

Based on the analysis of 10 years rainfall data (2008-2017), the planned rainfall is 135 mm / day. Rainfall intensity is 20.69 mm / hour with a 3 year rain return period and hydrological risk of 86.83%. The area of the catchment area at the study site was divided into 2 catchment areas based on the direction of runoff water flow. Rain catchment area I = 140 Ha, runoff water discharge = 26,090 m³ / hour. Rain catchment area II = 94 Ha, runoff water discharge = 13,625 m³ / hour

Recommended open channel dimensions $h = 1,33$ m; $d = 1,16$ m; $b = 2,68$ m; $B = 1,33$ m; $a = 1,34$ m. Runoff water discharge into the settling pond is 4,34 m³ / sec.