

## RINGKASAN

PT. Sari Bhumi Khatulistiwa merupakan suatu perusahaan penambangan batu Andesit yang beroperasi di wilayah Desa Hargomulyo, Kecamatan Kokap, Kabupaten Kulon Progo Daerah Istimewa Yogyakarta. Sistem penambangan yang diterapkan oleh PT. Sari Bhumi Khatulistiwa adalah tambang terbuka dengan metode kuari.

Sistem penambangan dengan metode kuari yang diterapkan akan sangat berpengaruh dengan keadaan cuaca secara langsung, terutama di musim hujan. Pada saat musim hujan, air hujan maupun air limpasan akan langsung masuk ke *front* penambangan. Keadaan tersebut dapat menyebabkan kerusakan pada jalan tambang dan terjadi genangan air pada area penambangan jika tidak ditangani dengan baik.

Berdasarkan analisis data curah hujan pada tahun 2009 – 2018, diperoleh nilai curah hujan rencana 128,71 mm/hari, intensitas curah hujan 44,62 mm/jam dengan periode ulang hujan 3 tahun dan resiko hidrologi sebesar 86,83%. Luas daerah tangkapan hujan di lokasi penelitian dibagi menjadi tiga daerah tangkapan hujan, yaitu : DTH 1 = 0,005 km<sup>2</sup>, DTH 2 = 0,018 km<sup>2</sup> dan DTH 3 = 0,030 km<sup>2</sup>. Debit air limpasan pada DTH 1 = 0,02 m<sup>3</sup>/detik, DTH 2 = 0,09 m<sup>3</sup>/detik dan QDTH 3 = 0,23 m<sup>3</sup>/detik.

Pembuatan saluran terbuka bertujuan untuk mengalirkan air hujan yang masuk ke area penambangan dan mengalirkan air limpasan agar tidak menggenangi jalan tambang. Terdapat tiga (3) saluran terbuka dengan dimensi masing-masing:

1. Saluran Terbuka I : B = 0,31m; b = 0,51m; h = 0,18m; a = 0,20m; d = 0,21m; L = 258m;  $\alpha = 60^\circ$ .
2. Saluran Terbuka II : B = 0,55m; b = 0,92m; h = 0,32m; a = 0,36m; d = 0,38m; L = 306m;  $\alpha = 60^\circ$ .
3. Saluran Terbuka III : B = 0,78m; b = 1,30m; h = 0,45m; a = 0,51m; d = 0,54m; L = 258m;  $\alpha = 60^\circ$ .

Air yang dialirkan oleh saluran terbuka akan menuju kolam pengendapan untuk dijernihkan terlebih dahulu sebelum dialirkan ke sungai sekitar area penambangan. Kolam pengendapan dirancang terdiri dari tiga (3) kompartmen dengan luas masing-masing 455 m<sup>2</sup> dan volume 2.580 m<sup>3</sup>. Pembersihan (pengerukan) endapan di kolam pengendapan harus dilakukan setiap 222 hari sekali.

## SUMMARY

PT. Sari Bhumi Khatulistiwa is one of the Andesite mining company in Kulonprogo Regency, operating in Hargomulyo Village, Kokap District. Mining system implemented by PT. Sari Bhumi Khatulistiwa is surface mining called Quarry.

Quarry is likely affected by weather condition, especially during raining condition. During heavy rainfall, the run off can potentially enter to the mine working area. It may cause several harm like damaged on mine road and stagnant water on the mine working area if not properly handled.

Based on the analysis of rainfall data from 2009 – 2018, the scheduled precipitation value is 128,71 mm/day, with rainfall intensity 44,62 mm/hour during 3 year rainfall period and hidrology risk 86,83%. Rain in the catchment area is divided in 3 catchment areas, as follows: Catchment Area 1 = 0,005 km<sup>2</sup>, Catchment Area 2 = 0,018 km<sup>2</sup> and Catchment Area 3 = 0,030 km<sup>2</sup>. Discharge of the run off in each catchment as follows: Catchment Area 1 = 0,02m<sup>3</sup>/sec, Catchment Area 2 = 0,09 m<sup>3</sup>/sec and Catchment Area 3 = 0,23m<sup>3</sup>/sec.

It is necessary to develop open channel around the perimeter mine site to restrain rainwater from entering the mining area and canalize the run off from disturbing the mine roads. There are three (3) open channels with each dimension:

1. Open Channel I : B = 0,31m; b = 0,51m; h = 0,18m; a = 0,20m; d = 0,21m; L = 258m;  $\alpha = 60^\circ$ .
2. Open Channel II : B = 0,55m; b = 0,92m; h = 0,32m; a = 0,36m; d = 0,38m; L = 306m;  $\alpha = 60^\circ$ .
3. Open Channel III : B = 0,78m; b = 1,30m; h = 0,45m; a = 0,51m; d = 0,54m; L = 258m;  $\alpha = 60^\circ$ .

Before the run off water from the open channels streamed into the river, it has to be cleared in the settling pond. Settling pond designs consist of three (3) compartments with each area of 455 m<sup>2</sup> and 2.580 m<sup>3</sup> of volume. The maintenance the sediment from settling pond is required every 222 days.