

## RINGKASAN

Penelitian dilakukan di lokasi penambangan batu gamping PT Semen Padang Indarung, Kecamatan Lubuk Kilangan, Kota Padang, Provinsi Sumatera Barat. Dalam sistem tambang terbuka yang berhubungan langsung dengan udara, kondisi cuaca sangat berpengaruh dalam keberlangsungan kegiatan penambangan. Air hujan akan berpotensi mengganggu kegiatan penambangan khususnya di lokasi penambangan PT Semen Padang. Terdapat genangan air pada jalan angkut tambang, hal tersebut dikarenakan tidak adanya *cross slope* sehingga air tidak dapat mengalir ke saluran terbuka. Hasil perhitungan dimensi kolam pengendapan dan *wetland* belum mampu menampung debit maksimum, apabila terjadi curah hujan maksimal. Oleh karena itu perlu dilakukan evaluasi dan optimasi terkait *cross slope* jalan angkut, dimensi kolam pengendapan dan *wetland*.

Penelitian dilakukan dengan melakukan studi literatur, setelah itu dilanjutkan dengan pengambilan data di lokasi penambangan batu gamping PT Semen Padang. Pengambilan data meliputi data primer dan data sekunder. Data primer berupa dimensi saluran terbuka dan gorong-gorong, dimensi kolam pengendapan, sedangkan data sekunder berupa data curah hujan dan peta topografi. Pengolahan data meliputi curah hujan rencana, debit air limpasan, perhitungan dimensi saluran terbuka, kebutuhan luas kolam pengendapan.

Hasil pengolahan data diperoleh curah hujan rencana 165,32 mm/hari, intensitas hujan sebesar 31,11 mm/jam dengan waktu konstan 2,5 jam. Luas daerah tangkapan hujan dibagi menjadi 7 bagian dengan luas total 4,081 km<sup>2</sup> dan debit air limpasan sebesar 24,74 m<sup>3</sup>/detik.

Terdapat 3 saluran terbuka utama dimana masing-masing saluran terbuka sudah mampu menampung debit air yang ada disekitar. Terdapat 3 zona kolam pengendapan yaitu zona barat, zona tengah, dan zona timur, berdasarkan hasil perhitungan ketiga zona kolam pengendapan belum mampu menampung seluruh debit yang mengalir. Kolam pengendapan yang dibutuhkan yaitu zona Barat sebesar 14.400 m<sup>2</sup>, zona Tengah sebesar 14.250 m<sup>2</sup>, zona Timur sebesar 15.600 m<sup>2</sup>. Untuk waktu pengerukan kolam pengendapan rata-rata 4 tahun sekali.

## **SUMMARY**

*The research was conducted at the limestone mining site of PT Semen Padang Indarung, Lubuk Kilangan District, Padang City, West Sumatra Province. In an open-pit mining system that is directly related to the air, weather conditions are very influential in the continuity of mining activities. Rainwater will potentially disrupt mining activities, especially at the PT Semen Padang mining site. There is a puddle of water on the mine haul road, this is because there is no cross slope so that water cannot flow in the open channel. From the calculation of the dimensions of the settling pond and wetland, it has not been able to accommodate the maximum discharge, in the event of maximum rainfall. Therefore, it is necessary to evaluate and optimize the haul road cross slope, settling pond and wetland dimensions.*

*The research began with a literature study, then continued with data collection at the PT Semen Padang limestone mining site. Data collection includes primary data and secondary data. Primary data in the form of topographic conditions, dimensions of open channels and culverts, dimensions of settling ponds, while secondary data in the form of rainfall data and topographic maps. Data processing includes rainfall plans, runoff water discharge, open channel and culvert dimensions, settling pond area requirements.*

*From the results of data processing obtained rainfall plan 165,32 mm / day, rain intensity of 31,11 mm / hour with a constant time of 1 hour. The catchment area is divided into 7 sections with a total area of 4.081 km<sup>2</sup> and runoff water discharge of 24,74 m<sup>3</sup> / sec.*

*There are 3 main open channels where each open channel is able to accommodate the surrounding water discharge. There are 3 zones of settling ponds, namely the west zone, the middle zone, and the east zone, based on the results of the calculation of the three zones of the settling pond have not been able to accommodate all flowing discharges. The required settling ponds are the West zone of 14.400 m<sup>2</sup>, the Central zone of 14.250 m<sup>2</sup>, the East zone of 15.600 m<sup>2</sup>. For the settling pond dredging time, the average is once every 4 years.*

