RINGKASAN

Tambang Batubara PT. Indominco Mandiri yang terletak berada di Kabupaten Kutai Timur, Kutai Kertanegara dan Kota Bontang, Provinsi Kalimantan Timur terdiri atas 2 Blok Utama, yaitu Blok Timur (*East Block)* dan Blok Barat (*West Block*). Analisis Kestabilan rancangan lereng penambangan di *Pit* 8AN *East Block* sampai saat ini masih mengacu pada peraturan lama, yaitu menggunakan Faktor Keamanan dalam menentukan lereng aman atau tidak. Sedangkan menurut Keputusan Menteri ESDM No. 1827 K/30/MEM Tahun 2018, penentuan lereng aman atau tidak berdasarkan pada Faktor Keamanan (FK) dan Probabilitas Longsor (PL).

Lereng penambangan yang diteliti adalah lereng *highwall* dan *lowwall*. Penelitian ini dilakukan untuk menganalisis kestabilan rancangan lereng akhir penambangan (*final pit*) sehingga rancangan lereng tersebut dapat dikategorikan aman atau tidak aman. Berdasarkan penyelidikan geoteknik dan pengamatan di lapangan, didapatkan jenis longsoran yang terjadi adalah longsor busur untuk lereng *highwall* dan longsoran bidang untuk lereng *lowwall*. Analisis stabilitas lereng menggunakan metode kesetimbangan batas (Bishop Simplified) dibantu dengan *software Slide v.8.0 (Rocscience*). Sedangkan untuk analisis probabilitas longsor menggunakan metode Monte Carlo.

Berdasarkan hasil analisis, diketahui rancangan lereng akhir penambangan baik Lereng A maupun Lereng B dikategorikan aman. Variasi dilakukan terhadap rancangan kedua lereng akhir penambangan dengan menambah sudut lereng keseluruhan. Pada lereng A dengan menambah sudut lereng tunggal dan pada lereng B dengan mengurangi lebar *berm.* Sehingga, nilai faktor keamanan lereng tersebut berkurang menjadi lebih besar atau sama dengan 1,3 dan nilai probabilitas longsor bertambah sampai batas maksimal 10%. Dampak dari adanya optimasi lereng yaitu bertambahnya cadangan batubara.

Kata kunci: Metode Kesetimbangan Batas, Faktor Keamanan, Probabilitas Longsor, Lereng A, Lereng B

SUMMARY

PT. Coal Mine Indominco Mandiri which is located in East Kutai Regency, Kutai Kertanegara and Bontang City, East Kalimantan Province consists of 2 Main Blocks, namely East Block and West Block. Analysis of the stability of the mining slope design in Pit 8AN East Block is still based on the old regulation, which is using the Safety Factor in determining whether the slope is safe or not. Meanwhile according to Minister of Energy and Mineral Resources Decree No. 1827 K / 30 / MEM Year 2018, determining whether or not the slope is safe is based on the Safety Factor (SF) and Probability of Failure (PoF).

The mining slopes studied are highwall and lowwall slopes. This research was conducted to analyze the stability of the final pit design slope (final pit) so that the slope design can be categorized as safe or unsafe. Based on geotechnical investigations and observations in the field, it was found that the type of failure that occurred was a circular failure for highwall slopes and a plane failure for lowwall slopes. Slope stability analysis using the limit equilibrium method (Bishop Simplified) is assisted with Slide v.8.0 (Rocscience) software. As for the analysis of the probability of failure using the Monte Carlo method.

Based on the results of the analysis, it is known that the design of the final mining slopes, both Slope A and Slope B, is considered safe. Variations are made to the design of the two final slopes of mining by adding the overall slope angle. On slope A by increasing the angle of a single slope and on slope B by reducing the width of berm. Thus, the value of the slope safety factor decreases to be greater or equal to 1.3 and the value of the probability of failure increases to a maximum limit of 10%. The impact of slope optimization is increasing coal reserves.

Keywords: Limit Equilibrium Method, Safety Factor, Probability of Failure, Slope A, Slope B