Analisa risiko lereng tambang di plant site Cirebon, PT. Indocement Tunggal Prakarsa Jawa Barat

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Abstrak

Dari hasil pemetaan di lapangan terdapat empat (4) lokasi yang berpotensi untuk terjadinya bahaya gerakan tanah atau batuan. Potensi bahaya tersebut harus dikendalikan secara tepat untuk mengurangi atau menghindari bahaya yang berdampak pada aktivitas produksi, properti, lingkungan serta manusia.

Lokasi yang berpotensi terhadap gerakan tanah atau batuan tersebut adalah :
1. Kuari "A" bagian timur tingkat kendati risikonya tinggi terjadi gerakan tanah.
2. Kuari "B" bagian selatan tingkat kendali risikonya tinggi terjadi gerakan batuan.
3. Gunung Slindis tingkat kendali risikonya tinggi terjadi gerakan batuan.
4. Kuari "A" bagian barat tingkat kendali risikonya ketat terjadi gerakan batuan.

Hasil analisa potential loss pada setiap lokasi penelitian, sebagai berikut :
1. Berdasarkan analisa risiko ketidakstabilan lereng, gerakan tanah di lokasi Kuari "A" bagian timur, dapat mengakibatkan kerugian pada properti, proses, lingkungan maupun manusia (total) sebesar dari US $ 112.660 (most likely) sampai US $ 1.062.450 (Worst case).
2. Berdasarkan analisa risiko ketidakstabilan lereng, runtuhan batuan di lokasi Kuari "B" bagian selatan, dapat mengakibatkan kerugian pada properti, proses, lingkungan maupun manusia (total) sebesar dari US $ 109.960 (most lokely) sampai US $ 1.056.450 (Worst case).
3. Berdasarkan analisa risiko ketidakstabilan lereng, runtuhan bantuan di lokasi Gunung Blindis, dapat mengakibatkan kerugian pada properti, proses, lingkungan maupun manusia (total) sebesar dari US $ 11.930 (most likely) sampai US $ 478.450 (Worst case).
4. Berdasarkan analisa risiko ketidakstabilan lereng, runtuhan batuan di lokasi Kuari "A" bagian barat, dapat mengakibatkan kerugian pada properti, proses, lingkungan maupun manusia (total) sebesar dari US $ 108.860 (most likely) sampai US $ 1.254.000 (Worst case).

Analisa risiko lereng tambang dengan menggunakan metode analisa slope instability yang digabungkan dengan Workplace Risk Assessment and Control (WRAC), merupakan metode yang efektif dan efisien untuk memberikan hasil penelitian secara cepat dan tepat.

Beberapa hal yang dapat dilakukan dalam rangka mengontrol potensi bahaya gerakan tanah di lokasi penelitian yaitu 1). Pendekatan rekayasa teknik dan 2).

Pendekatan rekayasa non teknik tentang resiko bahaya gerakan tanah dan batuan, serta cara pencegahannya.

Pendekatan ini biasanya merekayasa dua faktor penyebab gerakan tanah atau batuan yaitu dengan

memperbesar faktor F (shear strength) dari batuan dan memperkecil N (shear stress) pada batuan. Rekayasa teknik umumnya relatif mahal dan penulis menyarankan di lakukan pada dua lokasi, yaitu : Kuari "A" bagian timur dan Kuari "A" bagian barat, karena pelaksanaannya lebih efektif dan biayanya lebih efisien.

Rekayasa teknik sangat sulit diterapkan pada lokasi Kuari "B" bagian selatan dan Gunung Blindis karena kondisi geologinya menyulitkan untuk dilakukan counter weight, mengurangi tekanan pori air, maupun memasang penyangga mekanik. Pada kedua lokasi tersebut, lebih tepat pengendalian risikonya memakai pendekatan rekayasa non teknik.

Pendekatan rekayasa non teknik adalah upaya peningkatan peran masyarakat, instansi terkait, serta seluruh karyawan dalam rangka mengurangi resiko bahaya gerakan tanah atau runtuhan bantuan.

Daftar Bacaan : 27 (1954 - 2003)
<hr><i>Risk Analysis on Mine Slope in the Cirebon Plant Site, PT. Indocement Tunggal Prakarsa West JavaFrom mapping result in the field there are four (4) locations which have a potential to occurring a dangerous land movement or rock movement . The potential dangerous must be controlled as quickly as to reduce or avoid dangerous which will affect to the activity of production, property, environment and also to the human it self.

The locations, which have potential against land or rock movement, are:
1. Quarry "A" at East Side the risk of control level is high to be a land movement
2. Quarry "B" at South Side the risk of control level is high to be a rock movement.
3. Mt. Blindis the risk of control level is high to be a rock movement.
4. Quarry "A" West Side the risk of control level is tight to be a rock movement.

Result of potential loss analysis on every research location is as follow :
1. Based on the risk analysis of slope instability, land movement at the location Quarry "A" East side, could caused a damage on property, process, environment, even human being (total) as much US $ 112.60 (most likely) up to US $ 1.062.450 (Worst case).
2. Based on the risk analysis of slope instability, rock fall at the location Quarry "B" South side, could caused a damage on property, process, environment, even human being (total) as much US $ 109.960 (most likely) up to US $ 1.056.450 (Worst case).
3. Based on the risk analysis of slope instability, rock fall at the location Mt. Blindis, could caused a damage on property, process, environment, even human being (total) as much from US $ 11.930 (most likely) up to US $ 478.450 (Worst case).
4. Based on the risk analysis of slope instability, rock fall at the location Quarry "A" West side, could caused a damage on property, process, environment even human being (total) as much from US 108.860 (most likely) up to US $ 1.254.000 (Worst case).

Risk analysis of mine slope by used the analysis method of slope instability which mixed with Workplace Risk Assessment and Control (WRAC), is an effective and efficient method to provide observation result as suit and quickly.

Some improvements in the frame to control the potential of dangerous of land movement in the research location are 1). Process of Technical Approach and 2). Process of Non Technical Approach about the dangerous of land and rock movement, and also the method to avoid.

Process of Technical Approach :
This approach usually process in two factor of the cause of land or rock movement which are to enlarge F Factor (shear strength) from the rock and to decrease N Factor (shear stress) on the rock. Generally technical process is relatively expensive and author suggest to do on two location, which are : Quarry "A" East side and Quarry "A" West side, because the implementation have more effective and the cost have more efficient.

Process of Non Technical Approach :
Technical process are very difficult to be applied at the location Quarry "B" South side and Mt. Blindis because their geology condition are difficult against their counter weigh, reducing their water pore, even to settle mechanic stager. For both locations, the controlling risk is more suites to use the process of Non Technical Approach.

Process of non-technical approach is the effort to increase the role of society, connected institution, and all staff in the frame to reduce the dangerous risk of land movement or rock fall.

References : 26 (1954 - 2003)</i>