Sari

Operasi tambang terbuka batubara masih terus dilakukan hingga saat ini. Salah satu tambang terbuka yang masih aktif terdapat di daerah Sangatta Utara, Kabupaten Kutai Timur, Provinsi Kalimantan Timur pada Izin Usaha Pertambangan (IUP) PT Kaltim Prima Coal. Daerah penelitian ini terdapat fenomena kelongsoran pada *lowwall* terjadi di Pit Pelikan, pada lereng yang sama di sisi utara mengalami kelongsoran dan di sisi selatan lereng tersebut stabil, sehingga diperlukan kajian kestabilan lereng dalam desain galian. Tujuan dari penelitian ini adalah mengidentifikasi penyebab fenomena potensi kelongsoran pada *lowwall* yang sama dan menganalisis pengaruh hubungan antara kemiringan lapisan, tinggi lereng, dan posisi lapisan lemah pada lereng *lowwall*.

Metodologi yang digunakan pada penelitian ini adalah pengumpulan data primer di lapangan dan hasil uji laboratorium serta data sekunder berupa data bor dan penelitian terdahulu baik dalam bentuk tulisan maupun peta serta analisis. Data tersebut kemudian diolah menggunakan *software Arcgis* dan *Slide 6.0*.

Berdasarkan aspek geomorfologi, daerah penelitian terdiri atas satuan perbukitan homoklin terkikis (D1), lahan hasil penggalian (A1), lahan hasil timbunan (A2), dan *sump* (A3). Stratigrafi daerah penelitian tersusun oleh satuan batulempung-Balikpapan, satuan batupasir-Balikpapan yang berumur Miosen Tengah - Miosen Akhir. Dari analisa parameter kelongsoran pada *lowwall* Pit Pelikan didapatkan hasil analisis parameter kelongsoran didapatkan adanya perbedaan parameter yang signifikan yaitu nilai *UCS* dan keberadaan lapisan lemah. Untuk mengatasi kelongsoran pada *lowwall* Pit Pelikan tersebut maka dibuat grafik pengaruh kemiringan lapisan terhadap faktor keamanan. Dengan metode ini diharapkan dapat memberikan informasi mengenai penentuan lereng *lowwall* yang optimum dengan melihat nilai dip dan posisi lapisan lemah.

Kata kunci : *Geologi, Lowwall, Longsor, Kemiringan Lapisan, Kestabilan Lereng*

Abstract

Nowadays, open-pit coal mining still exists. One of the example of active open pit mining was founded in Sangatta Utara, Kutai Timur, Kalimantan Timur (IUP PT Kaltim Prima Coal). There was a landslide phenomenon in lowwall that happened in Pit Pelikan. There was also a landslide that happened on the same side on the north downhill, but in the south downhill condition was stable. Based on this situation, there was needed research and analysis about the stability of the downhill related to the mining design. The goal of this research was to identify the cause of the landslide potency in the same lowwall and analyze the effect between the tilt level, height level, and the position of the weak part of the downhill that happens in the lowwall.

The methodology in this research was by collecting primary data in the field and laboratory tests, and secondary data from laboratory tests in the form of bor drilling and past research in the form of written and mapping analysis. All of those data were analyzed using Arcgis and Slide 6.0 software.

Based on geomorphological aspects, the research area consisted of eroded homocline hill units (D1), excavated land (A1), filled land (A2), and sumps (A3). The stratigraphy of the study area was composed of mudstone-Balikpapan units and sandstone-Balikpapan units of the Middle Miocene - Late Miocene age. From the analysis of the landslide parameters on the Pelikan Pit lowwall, the results of the landslide parameter analysis showed that there were significant differences in parameters, namely the UCS value and the presence of weak layers. To overcome landslides on the lowwall of the Pelikan Pit, a graph was made of the influence of the slope of the layer on the safety factor. With this method, it was hoped that it could provide information regarding determining the optimum lowwall slope by looking at the dip value and position of the weak layer.

Keywords: *Geology, Lowwall, Landslide, Layer slpoe, Slope stability*