

ABSTRAK

Penelitian dilaksanakan pada tambang terbuka (*Open Pit*) batubara yang berada di Tanjung Lalang, Tanjung Agung, Kabupaten Muara Enim, Provinsi Sumatera Selatan. Penelitian dilakukan menggunakan data primer geologi berupa data interpretasi dan deskripsi batuan yang tersingkap pada *highwall* dan *lowwall*, serta pengujian laboratorium sampel tanah dan batuan. Data geoteknik didapatkan dari data pemboran lima titik yang telah dilakukan di sekitar area penelitian. Penelitian ini menggunakan perangkat lunak Slide 6 yang berimplementasi pada metode kesetimbangan batas (*Limit Equilibrium Method*) (LEM). Area penelitian merupakan lokasi longsor yang telah terjadi pada sisi timur area eksploitasi tambang. Lokasi tersebut memiliki kedudukan batuan N 150° E/10° SW yang diukur pada *sidewall* timur. Lokasi penelitian tersusun oleh perselingan batupasir-batulempung dengan sisipan batubara. Klasifikasi massa batuan *Rock Mass Rating* (RMR) menunjukkan bahwa batuan di lokasi penelitian adalah baik termasuk dalam kategori II. Klasifikasi *Geological Strength Index* (GSI) di daerah penelitian termasuk *intact rock – very blocky*. Parameter geoteknik didapatkan dengan metode analisis balik (*back analysis*) dengan pendekatan *Generalized Hoek-Brown* dan mendapatkan nilai *Uniaxial Compressive Strength* (UCS) sebesar 1000 kPa, m 0,192161, s $7,91279 \cdot 10^{-5}$, a 0,561101. Analisis kinematika didapatkan hasil bahwa terdapat potensi longsor membaji (*Wedge Sliding*) sebesar 6,65 % dan longsor guling (*Toppling*) sebesar 3,13%. Longsor yang terjadi pada lokasi penelitian termasuk longsor campuran (*composite*) dengan jenis longsor busur dan planar. Analisis kestabilan lereng menggunakan metode percobaan memasukkan data (*trial and error*) mendapatkan nilai faktor keamanan (FK) 1,3.

Kata kunci : longsor, RMR, GSI, analisis kesetimbangan batas, analisis kinematika

ABSTRACT

The research was conducted at an open pit coal mine located in Tanjung Lalang, Tanjung Agung, Muara Enim Regency, South Sumatra Province. The study used primary geological data which are interpretation and description of rocks on highwall and lowwall, as well as laboratory testing of soil and rock samples. Geotechnical data were obtained from five drilling points that have been carried out around the research area. This research uses Slide 6 software which implements the Limit Equilibrium Method (LEM). The research area is a landslide that has occurred on the east side of the mining exploitation area. This location has rock position N 150° E/10° SW that was measured on the east sidewall. The research area is composed of sandstone-claystone and was inserted by coal. penelitian tersusun oleh perselingan batupasir-batulempung dengan sisipan batubara. Classification of Rock Mass Rating (RMR) showed that the rock in the research area is well included in category II. The classification of the Geological Strength Index (GSI) in the research area is included in intact rock – very blocky. The geotechnical parameters were obtained by using the back analysis method with Generalized Hoek-Brown criteria and obtained Uniaxial Compressive Strength (UCS) values were 1000 kPa, m 0.192161, s 7.91279.e-5, a 0.561101. Kinematics analysis showed that there is a potential Wedge Sliding of 6.65% and a Toppling Sliding of 3.13%. Landslides at the research area are composite landslides with landslide types that were Circular and Planar. Analysis of slope stability using the trial and error method obtained a value of safety factor (FK) 1.3.

Keywords : landslide, RMR, GSI, limit equilibrium method, kinematic analysis