ABSTRAK

Daerah penelitian secara lokasi berada di desa Gunung Panjang, Kecamatan Tanjung Redep, Kabupaten Berau, Provinsi Kalimantan Timur dengan luas area penelitian yaitu 2.7 km x 2.1 km. berdasarkan stratigrafi daerah penelitian tersusun atas Satuan batupasir Latih dan Endapan Alluvial. Satuan batupasir Latih berdasarkan data bor dijumpai litologi batupasir, batupasir-silika, batulempung, dan batubara. Pada interburden seam K-L tersusun atas fragmen nodule batupasir bersifat karbonatan dengan kekuatan batuan sulit untuk diberai dan batulempung. Lapisan batuan pada *interburden* seam K-L merupakan penyumbang *terbesar resource expose* batubara dikarenakan seam K memiliki ketebalan antara 2 – 3.5 meter sehingga prioritas utama yaitu pemberaian lapisan batuan pada interburden seam K-L.

Berdasarkan hasil data aktual pada laporan bulanan Juli 2022 – Juli 2023 menunjukkan *trend* penurunan produktivitas pemberaian batuan pada lokasi penelitian paralel dengan penurunan elevasi. Sehingga berdasarkan penilaian *rippability* batuan menggunakan metode langsung menunjukkan lapisan batuan yang diamati seluruhnya yaitu *rippable*, sedangkan menggunakan metode tidak langsung pada lapisan dan elevasi yang sama dijumpai perbedaan *rippability* batuannya yaitu dijumpai *rippable* dan *non-rippable*. Berdasarkan data *rippability* batuan dan hasil deskripsi batuan pada area yang diamati hasil analisa yaitu lapisan batupasir-silika dan batulempung dijumpai fragmen batupasir yang sulit diberai dengan penyebaran yang tidak teratur dan semakin turun elevasi persentasi fragmen semakin banyak sehingga menurunkan nilai produktivitas *ripping*.

Hubungan antara elevasi, kekuatan batuan, *rippability* batuan dan produktivitas *ripping* yaitu semakin dalam elevasi batuan maka nilai kekuatan batuan semakin tinggi, nilai produktivitas batuan semakin turun, persebaran fragmen batuan dengan kekuatan batuan yang sulit diberai semakin banyak dan nilai *rippability* batuan semakin *non-rippable*.

Metode pemberaian batuan di daerah penelitian mempertimbangkan stratigrafi batuan, struktur geologi dan keekonomisan baik menggunakan metode langsung maupun tidak langsung terutama pada interburden seam K-L semakin turun elevasi maka metode pemberaiannya menggunakan metode *blasting*. Batas elevasi menggunakan metode *ripping* dan metode *blasting* yaitu pada elevasi -22.

Keywords: Batupasir, Metode Pemberaian Batuan, *Rippability* Batuan

ABSTRACT

The research area is located in Gunung Panjang Village, Tanjung Redep District, Berau Regency, East Kalimantan Province with a research area of 2.7 km x 2.1 km. Based on the stratigraphy of the research area, there are found Sandstone Latih Formation and Alluvial Deposits. based on drilling data on Sandstone Latih Formation are found sandstone, sandstone-silica, claystone, and coal lithology. In the interburden seam K-L, there are composed fragments of carbonate sandstone nodules with rock strength that is difficult to break apart. The interburden seam K-L is the largest contributor to coal exposed resources because the K seam has a thickness of between 2 - 3.5 meters so that the main priority is the dissolution of the rock layer in the interburden seam K-L.

Based on the actual data results in the monthly report for July 2022 – July 2023, there are show a decreasing trend in rock breaking productivity at the research location parallel to the decrease in elevation. So based on the assessment of rock rippability using the direct method, there area show that the entire observed rock layer is rippable. Meanwhile, in the indirect method on the same layer and elevation, differences in rock rippability were found, namely rippable and non-rippable rocks. Based on rock rippability data and rock description results in the observed area, the analysis results, silica-sandstone and mudstone, there are composed sandstone fragments that were difficult to separate with irregular distribution and the lower the elevation, the greater the percentage of fragments, thus reducing the ripping productivity value.

Between elevation, rock strength, rock rippability and ripping productivity, they have a correlation. The deeper of the rock elevation, the higher of the rock strength value, the lower of the rock productivity value, the distribution of rock fragments with rock strength that is difficult to break up increases and the rock rippability value becomes more non-rippable.

The rock breaking method in the research area considers rock stratigraphy, geological structure and economics using both direct and indirect methods, especially in the interburden seam K-L, the lower elevation and then breaking method uses the blasting method. The elevation limit uses the ripping method and the blasting method, an elevation of -22.

Keywords: Sandstone, Rock Breaking Method, Rock Rippability