

ABSTRAK

GEOLOGI DAN HUBUNGAN KARAKTERISTIK *CLEAT* TERHADAP KUALITAS BATUBARA PIT PSE, KECAMATAN RANTAU PULUNG, KABUPATEN KUTAI TIMUR, PROVINSI KALIMANTAN TIMUR

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Secara administratif daerah penelitian terletak di kawasan pertambangan milik PT. Kaltim Prima Coal, Kecamatan Rantau Pulung, Kabupaten Kutai Timur, Provinsi Kalimantan Timur. Daerah penelitian termasuk dalam Cekungan Kutai dengan formasi pembawa batubara yaitu Formasi Balikpapan. Tujuan dilakukan penelitian ini yaitu untuk mengetahui geologi lokal dan hubungan karakteristik *cleat* terhadap kualitas batubara. Metode penelitian yang digunakan berupa pemetaan geologi dan pengambilan data karakteristik *cleat* dengan konsep *windows sampling* secara langsung di lapangan. Selanjutnya dilakukan tahap analisa data dan sintesis data. Berdasarkan kondisi geomorfologi, hasil analisis menunjukkan bahwa daerah penelitian terdiri atas bentuk lahan pertambangan (A1), kolam pengendapan (A2), kolam tambang (*sump*) (A3), bukit terkikis (D1), dan bukit sisa (D2). Stratigrafi daerah penelitian berdasarkan ciri litologi yang dominan dikelompokkan menjadi dua satuan batuan tak resmi dari tua ke muda yaitu satuan batulempung Balikpapan (Miosen Tengah), selanjutnya terendapkan secara selaras satuan batupasir Balikpapan (Miosen Tengah). Struktur geologi yang berkembang berupa kekar pada batuan dan *cleat* pada batubara. Berdasarkan hasil analisis karakteristik *cleat* pada daerah penelitian termasuk dalam endogenik *cleat* yang menunjukkan pola normal dan tidak terpengaruhi oleh struktur geologi. Hubungan karakteristik *cleat* terhadap kualitas batubara menggunakan korelasi parsial menunjukan adanya hubungan kuat dan sangat kuat pada karakteristik *cleat* dengan nilai *Total Moisture*, *Ash*, dan *Gross Calorific Value*.

Kata Kunci: Batubara, *Cleat*, Geologi, Kualitas

ABSTRACT

GEOLOGY AND THE RELATIONSHIP BETWEEN CLEAT CHARACTERISTICS AND COAL QUALITY IN PIT PSE, RANTAU PULUNG DISTRICT, KUTAI TIMUR REGENCY, EAST KALIMANTAN PROVINCE

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Administratively, the study area is located within the mining concession of PT. Kaltim Prima Coal, Rantau Pulung District, Kutai Timur Regency, East Kalimantan Province. The area lies within the Kutai Basin, with coal-bearing formations identified as the Balikpapan Formation. The purpose of this research is to determine the local geology and the relationship between cleat characteristics and coal quality. The research methods include geological mapping and the collection of cleat characteristic data using the window sampling concept conducted directly in the field. This is followed by data analysis and synthesis. Based on geomorphological conditions, the analysis results show that the study area consists of several landform units: mining landforms (A1), sedimentation ponds (A2), sump ponds (A3), eroded hills (D1), and residual hills (D2). The stratigraphy of the study area, based on dominant lithological characteristics, is grouped into two informal rock units from oldest to youngest: the Balikpapan claystone unit (Middle Miocene), conformably overlain by the Balikpapan sandstone unit (Middle Miocene), then deposited conformably with the Balikpapan sandstone unit (Middle Miocene). The geological structures identified include fractures in the rock and cleats in the coal. Based on the analysis results, the cleat characteristics in the study area are classified as endogenic cleats, which exhibit a normal pattern and are not influenced by geological structures. The relationship between cleat characteristics and coal quality, using partial correlation, shows a strong to very strong correlation between cleat characteristics and the values of Total Moisture, Ash, and Gross Calorific Value.

Keywords: Coal, Cleat, Geology, Quality