ABSTRAK

GEOLOGI DAN KONTROL LINGKUNGAN PENGENDAPAN TERHADAP KUALITAS BATUBARA *SEAM* V FORMASI WARUKIN DAERAH TAPIN, KALIMANTAN SELATAN

Oleh
Firmansyach Hida
NIM: 111220191
(Program Studi Sarjana Teknik Geologi)

Daerah penelitian berada di Pit Cendana, Lokpaikat, Tapin, Kalimantan Selatan tepatnya pada PT. Bhumi Rantau Energi. Latar belakang penelitian yaitu kontrol lingkungan pengendapan terhadap kualitas batubara. Penelitian ini bertujuan untuk mengetahui geologi daerah penelitian dan mengetahui faktor pengontrol lingkungan pengendapan terhadap kualitas batubara. Metode penelitian melibatkan pemetaan geologi dan pengolahan data sekunder yang selanjutnya dilakukan penyajian data. Hasil penelitian menunjukkan bahwa geomorfologi daerah penelitian dibagi menjadi bukaan tambang (A1), *sump* (A2), dan perbukitan denudasional (D1). Stratigrafi disusun oleh Satuan Batulempung dengan litologi batulempung karbonan, serpih karbonan, batulanau, batupasir, dan batubara yang berumur Miosen Tengah – Miosen Akhir. Struktur geologi yang ditemukan berupa kekar gerus dengan arah tegasan utama NW – SE. Lingkungan pengendapan daerah penelitian berada pada *transitional lower delta plain* dengan fasies *levee*, *channel*, *swamp* dan *crevasse splay*. Berdasarkan analisis palinomorf lingkungan pengendapan masuk ke dalam *freshwater peat swamp* dan *mangrove*. Pada hasil analisis maseral batubara, lingkungan pengendapan masuk ke dalam *wet forest swamp* dengan fasies *marsh, fen*, dan *telmatic*. Kualitas batubara menunjukkan rata-rata kandungan *inherent moisture* 18,34% (adb), abu 4,34% (adb), total sulfur 0,11% (adb), dan nilai kalor 7994 Btu/lb (mmmf) yang termasuk dalam peringkat Lignit A. Karakteristik tersebut mencerminkan kondisi pembentukan batubara pada lingkungan rawa yang jauh dari pengaruh laut dan suplai material anorganik yang relatif rendah.

Kata kunci: batubara, kualitas batubara, lingkungan pengendapan, maseral, palinomorf

ABSTRACT

GEOLOGY AND DEPOSITIONAL ENVIRONMENT CONTROL ON THE COAL QUALITY OF SEAM V WARUKIN FORMATION, TAPIN AREA, SOUTH KALIMANTAN

By
Firmansyach Hida
NIM: 111220191
(*Geological Engineering Undergraduate Program*)

The research area is located in Pit Cendana, Lokpaikat, Tapin Regency, South Kalimantan, within the mining concession of PT. Bhumi Rantau Energi. This study was conducted to investigate the influence of depositional environments on coal quality. The objectives of this research are to determine the geological conditions of the study area and to identify the depositional environmental factors controlling coal quality. The research methods involved geological mapping, secondary data processing, and subsequent data presentation and interpretation. The results indicate that the geomorphology of the study area can be divided into mine openings (A1), sump areas (A2), and denudational hills (D1). The stratigraphy consists of the Claystone Unit, comprising carbonaceous claystone, carbonaceous shale, siltstone, sandstone, and coal, deposited during the Middle to Late Miocene. Geological structures identified in the area are represented by shear joints with a principal stress orientation of NW–SE. The depositional environment is interpreted as a transitional lower delta plain, characterized by levee, channel, swamp, and crevasse splay facies. Palynomorph analysis indicates freshwater peat swamp and mangrove environments, whereas coal maceral analysis suggests deposition within a wet forest swamp setting represented by marsh, fen, and telmatic facies. Coal quality analysis shows average values of 18.34% inherent moisture (adb), 4.34% ash (adb), 0.11% total sulfur (adb), and a calorific value of 7,994 Btu/lb (mmmf), classifying the coal as Lignite A rank. These characteristics reflect coal formation under swamp conditions with limited marine influence and relatively low input of inorganic material.

Keywords: coal, coal quality, depositional environment, maceral, palynomorph