ABSTRAK

Ahli eksplorasi bergantung pada sampel batuan untuk mengidentifikasi kondisi fisik batuan untuk menjelaskan perubahan yang dialami batuan khususnya batubara sejak diendapkan. Pengukuran *logging* dapat memberikan informasi tersebut mulai dari keberadaan, kontinuitas, ketebalan, dan korelasi lapisan batubara yang dangkal hingga dalam di daerah yang diketahui mengandung batubara yang belum sepenuhnya dieksplorasi. Formasi Balikpapan dan Formasi Kampungbaru berada di Cekungan Kutai yang merupakan salah satu contoh suatu cekungan marginal rift dimana batubara derajat sedang tersingkap di permukaan daratan saat ini. Daerah penelitian dikendalikan oleh Antiklin Palaran asimetri yang menunjam arah Timurlaut-Baratdaya dengan kisaran kedudukan bidang perlapisan di sayap landai bagian Barat N190-240°E/26-41°. Dari model geometri lapisan batubara di Formasi Balikpapan dan Formasi Kampungbaru terlihat variasi ketebalan dikendalikan oleh kondisi morfologi cekungan saat pengendapan lapisan batubara. Kecenderungan penebalan mengarah ke selatan yang menunjukan arah aliran saat pengendapan. Selanjutnya faktor pengontrol utama terhadap kemiringan lapisan batubara yang ditemui pada lokasi penelitian berupa pergerakan tektonik di Cekungan kutai yang membentuk Antiklin Palaran. Berdasarkan data *logging*, kedua formasi termasuk *upper delta plain* dengan ciri ciri yaitu tebal lokal, terputus secara lateral ditandai dengan ditemukanya beberapa *washout* pada lapisan batubara. Geometri lapisan batubara berpengaruh terhadap cadangan ekonomis, arah penambangan, sistem penambangan, rencana produksi, dan *stripping ratio.*

Kata kunci : Geometri Lapisan Batubara, *Well Logging,* Formasi Balikpapan, Formasi Kampungbaru,

ABSTRACT

Explorationist rely on rock samples to identify the physical condition of the rock to explain the changes that rock has experienced since it was deposited. Logging measurements can provide such information on the presence, continuity, thickness, and correlation of shallow to deep coal seams in areas known to contain unexplored coal. The Balikpapan Formation and the Kampungbaru Formation are located in the Kutai Basin which is an example of a marginal rift basin where medium grade coal is exposed on the surface nowadays. The study area is controlled by the asymmetrical Palaran Anticline which subducts in a northeast-southwest direction with range of strike/dip on the western sloping limb N190-240°E/26-41°. From the geometry model of the coal seam at the contact of the Balikpapan Formation and the Kampungbaru Formation, it can be seen that the variation in thickness is controlled by the morphological conditions of the basin during the deposition of the coal seam. The tendency of thickening is towards the south which indicates the direction of flow during deposition. Furthermore, the main controlling factor for the slope of the coal seam found at the research site is the tectonic movement in the Kutai Basin which forms the Palaran Anticline. Based on the geophysical logging data, the two formations are upper delta plain with the characteristics of local thickness, laterally disconnected, marked by the discovery of several washouts in the coal seam. The geometry of the coal seam affects the economic reserves, the direction of mining, the mining system, the production plan, and the stripping ratio.

Keywords : Coal Seam Geometry, Well Logging, Balikpapan Formation, Kampungbaru Formation