

ABSTRAK

GEOLOGI DAN PENGARUH LINGKUNGAN PENGENDAPAN FORMASI BALIKPAPAN TERHADAP TOTAL SULFUR SEAM A7, A8, A9, A10, DAN A12, PIT INUL LIGNIT, BENGALON, KUTAI TIMUR, KALIMANTAN TIMUR

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Daerah penelitian berada di Pit Inul Lignit, Bengalon, Kutai Timur, Kalimantan Timur pada wilayah izin usaha pertambangan PT Kaltim Prima Coal. Latar belakang penelitian, yaitu lingkungan pengendapan akan mempengaruhi karakteristik batubara sehingga mempengaruhi kadar total sulfur pada batubara. Penelitian ini memiliki maksud untuk mengaplikasikan ilmu geologi terutama dalam industri batubara serta untuk memahami pengaruh lingkungan pengendapan terhadap total sulfur batubara. Tujuan penelitian untuk menganalisis hubungan antara kondisi geologi dan pengaruh lingkungan pengendapan terhadap total sulfur batubara. Metode penelitian melibatkan pemetaan geologi dan pengolahan data sekunder yang selanjutnya dilakukan sintesis data.

Hasil penelitian menunjukkan bahwa geomorfologi daerah penelitian dibagi menjadi *sump* (A1), lahan tambang (A2), dataran limpah banjir (F1), dan perbukitan denudasional (D1). Stratigrafinya dari tua ke muda disusun oleh Satuan batupasir Balikpapan dengan litologi yang ditemukan terdapat batupasir, perselingan batupasir dan batuserpih, batulempung sisipan batupasir, batulempung, batubara, serta Satuan batulempung Balikpapan dengan litologi yang ditemukan berupa batulempung, perselingan antara batulempung dan batupasir, batuserpih, batupasir serta batubara yang berumur Miosen Tengah. Struktur geologi yang ditemukan berupa sesar normal dan *normal right slip fault*.

Lingkungan pengendapan daerah penelitian berada pada *transitional lower delta plain* dengan fasies *channel*, *levee*, *swamp*, *interdistributary bay*, dan *crevasse splay*. Rata-rata total sulfur seam A7 bernilai 0,22%, A8 dengan nilai 0,16%, dan A9 yang bernilai 0,34% memiliki kadar sulfur rendah, sedangkan seam A10 dengan nilai rata-rata total sulfur 0,80% dan A12 yang bernilai 1,13% menunjukkan kadar sulfur yang lebih tinggi, diindikasikan akibat pengaruh air laut. Rata-rata kadar sulfur meningkat pada seam yang lebih muda dan dekat pengaruh air laut.

Kata kunci : batubara, geologi, lingkungan pengendapan, sulfur

ABSTRACT

GEOLOGY AND DEPOSITIONAL ENVIRONMENT INFLUENCE OF THE BALIKPAPAN FORMATION ON TOTAL SULFUR SEAMS A7, A8, A9, A10 AND A12, INUL LIGNITE PIT, BENGALON, EAST KUTAI, EAST KALIMANTAN

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The research area is located in Inul Lignite Pit, Bengalon, East Kutai, East Kalimantan in the mining business license area of PT Kaltim Prima Coal. The background of the research is that the environment of deposition will affect the characteristics of coal, thus affecting the total sulfur content of coal. This research aims to apply geology, especially in the coal industry, and to understand the influence of the depositional environment on coal total sulfur. The research objective is to analyze the relationship between geological conditions and the influence of depositional environment on coal total sulfur. The research method involved geological mapping and secondary data processing, followed by data synthesis.

The results show that the geomorphology of the study area is divided into sump (A1), mine land (A2), flood plain (F1), and denudational hills (D1). The stratigraphy from old to young is arranged by Balikpapan sandstone unit with lithology found in the form of sandstone, sandstone and shale, mudstone inserted sandstone, mudstone, coal, and Balikpapan mudstone unit with lithology found in the form of mudstone, intermixture between mudstone and sandstone, shale, sandstone and coal of Middle Miocene age. Geological structures found are normal fault and normal right slip fault.

The depositional environment of the study area is transitional lower delta plain with channel, levee, swamp, interdistributary bay, and crevasse splay facies. The average total sulphur of seam A7 with 0.22%, A8 with 0.16%, and A9 with 0.34% have low sulphur content, while seam A10 with an average total sulphur of 0.80% and A12 with 1.13% show higher sulphur content, indicated by the influence of seawater. The average sulphur content increases in younger seams and near seawater influence.

Keywords : coal, geology, depositional environment, sulphur