

## ABSTRAK

# ANALISIS GEOFISIKA *WELL LOGGING* UNTUK MENENTUKAN PENGARUH LINGKUNGAN PENGENDAPAN TERHADAP KARAKTERISTIK LAPISAN BATUBARA PADA KABUPATEN TAPIN, PROVINSI KALIMANTAN SELATAN

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Penelitian mengenai lingkungan pengendapan dan kualitas lapisan batubara telah dilakukan pada Formasi Warukin, Cekungan Barito yang berlokasi di Kabupaten Tapin, Provinsi Kalimantan Selatan. Penelitian ini memanfaatkan metode geofisika *well logging* dalam mengetahui keberadaan lapisan batubara, ketebalan, karakteristik dan lingkungan pengendapan lapisan batubara pada daerah penelitian.

Penelitian ini menggunakan log gamma ray dan log densitas untuk interpretasi litologi terutama batubara. Korelasi litologi secara *on strike* dan *cross strike* dilakukan untuk mengetahui ketebalan dan kemenerusan lapisan batubara. Dilakukan analisis elektrofases untuk mengetahui lingkungan pengendapan batubara di daerah penelitian. Analisis karakteristik lapisan batubara dilakukan berdasarkan nilai ketebalan, elevasi, densitas dan *volume shale*.

Didapatkan hasil berupa pada daerah penelitian dijumpai 4 jenis litologi batuan yaitu batulempung, batulanau, batupasir dan batubara. Hasil korelasi menunjukkan karakteristik lapisan batubara memiliki 15 *seam* utama dengan arah kemiringan ke arah barat. Hasil analisis elektrofases menunjukkan daerah penelitian termasuk lingkungan pengendapan *transitional lower delta plain*. Lapisan batubara memiliki nilai rata-rata *gamma ray* sebesar 0 – 24,02 API, densitas sebesar 1,07 – 1,69 gr/cc dan nilai *volume shale* sebesar 0,56 – 7,89 %. Nilai densitas dan *volume shale* batubara memiliki hubungan berbanding lurus, dan kedua nilai ini memiliki hubungan berbanding terbalik terhadap ketebalan lapisan. Nilai densitas dan *volume shale* yang tinggi serta lapisan batubara yang tipis menunjukkan indikator awal lapisan batubara yang kurang baik.

**Kata kunci :** Batubara, Geofisika *Well logging*, Densitas, *Gamma ray*, Lingkungan Pengendapan, Karakteristik Lapisan Batubara.

## ABSTRACT

*ANALYSIS OF GEOPHYSICAL WELL LOGGING FOR IDENTIFICATION THE  
DEPOSITIONAL ENVIRONMENT ON CHARACTERISTICS OF COAL LAYER  
AT TAPIN REGENCY, SOUTH KALIMANTAN PROVINCE*

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*Research on depositional environment and coal seam quality, located in Warukin Formation, Barito Basin, Tapin District, Province South Kalimantan. This research utilizes geophysical methods well logging to determine the presence of coal seams, thickness, characteristics and depositional environment of coal seams in the study area.*

*This study uses gamma ray logs and density logs for lithology interpretation, especially coal. Lithology correlations were on strike and cross strike carried out to determine the thickness and continuity of the coal seam. Electrofacies analysis was conducted to determine the depositional environment of coal in the study area. Analysis of coal seam characteristics was carried out based on the value of thickness, elevation, density and shale volume.*

*The results showed that in the research area there were 4 types of rock lithology, namely shale, siltstone, sandstone and coal. The correlation results show the characteristics of the coal seam having 15 seams with a slope to the west. The result of electrofacies analysis shows that the study area includes the transitional lower delta plain. The coal seam has an average gamma ray of 0 – 24.02 API, a density of 1.07 – 1.69 gr/cc and a volume shale of 0.56 – 7.89%. The value of density and volume shale of coal has a directly proportional relationship, and these two values have an inverse relationship to the thickness of the layer. Density and volume shale as well and thin coal seams indicated of a poor coal seam.*

**Keywords:** *Coal, Geophysics of Well logging, Density, Gamma ray, Depositional Environment, Coal Layer Characteristics.*