ABSTRAK

ANALISA KARAKTERISTIK DAN KEMENERUSAN LAPISAN BATUBARA BERDASARKAN DATA WELL LOGGING DAN DATA GEOLISTRIK RESISTIVITAS DAERAH SANGA-SANGA KABUPATEN KUTAI KARTANEGARA PROVINSI KALIMANTAN TIMUR

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Lapisan batubara dapat memiliki karakteristik batubara yang berbeda karena pengaruh bahan pembentuk batubara dan proses yang berlangsung pada pembentukannya. Untuk dapat menganalisa karakteristik lapisan batubara dan kemenerusan lapisan batubara tersebut penelitian ini menggunakan metoda geolistrik resistivitas dan *Well Logging*.

Metoda geolistrik resistivitas ini dapat membedakan nilai resistivitas batuan dan *Well Logging* yaitu *gamma ray log* dan *density log* didapatkan nilai *volume shale* dan nilai densitas pada batuan. Kemudian dilakukan korelasi sumur log dan pemodelan 3D untuk hasil dari geolistrik resistivitas yang berguna untuk dapat menggambarkan kondisi bawah permukaan sehingga dapat membantu dalam menganalisa kemenerusan lapisan batubara yang ada didaerah penelitian.

Hasil pengolahan data *Well Logging* didapatkan kurva log *gamma ray*, kurva log densitas, korelasi sumur log dan pengolahan data geolistrik resistivitas didapatkan penampang *pseudosection* 2D sejajar *strike* dan tegak lurus *strike* serta pemodelan 3D lapisan batubara. Pada hasil kurva *well Logging* V1 dan V2 terdapat 3 lapisan batubara dengan nilai *volume shale* yang bervariasi antara 0% - 0.276% dan nilai densitas lapisan batubara antara 1.759gr/cc – 2.236gr/cc. Pada penampang *pseudosection* 2D juga terdapat 3 lapisan batubara yang memiliki nilai resistivitas yang tinggi yaitu antara 580 - >1000 ohm.m dan dapat dikategorikan sebagai batubara bituminous hingga antrasit. Berdasarkan korelasi sumur log terlihat bahwa lapisan batubara memiliki kemenerusan dengan arah dari barat daya hingga timur laut dan kemenerusan lapisan batubara tersebut juga ditunjukkan dari pemodelan 3D geolistrik resistivitas, sehingga kemenerusan batubara pada daerah penelitian relatif dari barat daya hingga timur laut.

Kata kunci : Metoda geolistrik resistivitas, *Log Gamma ray*, *Log* densitas, karakteristik batubara, kemenerusan lapisan batubara

ABSTRACT

ANALYSIS CHARACTERISTICS AND CONTINUITY OF COAL SEAM BASED WELL LOGGING DATA AND GEOELECTRIC RESISTIVITY DATA IN SANGA-SANGA KUTAI KARTANEGARA REGENCY OF EAST KALIMANTAN PROVINCE

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Coal seams may have different characteristics due to the influence of the coal-forming materials and processes that occurred during the formation.To analyze the characteristics of the coal seam and the continuity of the coal seams, this study used geoelectric resistivity method and Well Logging.

Geoelectric resistivity method can differences the value of resistivity in rocks and well Logging namely gamma ray logs and density logs, can obtain the value of volume shale and value of the density of the rock. Then, the correlation of the well logs and 3D modeling was conducted to obtain the results of geoelectric resistivity, which is useful to describe the subsurface conditions to assist in analyzing the continuity of the coal seams in the area of research.

The result of Well Logging data processing is shows by gamma ray log curves, density log curves, well log correlation and the processing of geoelectric resistivity data results are the cross section of pseudosection 2D in parallel strike and perpendicular strike, and also 3D modeling of the coal seam. On the results of well logging curve V1 and V2, there are 3 seams of coal with volume shale value varies between 0% - 0276% and the density values of coal seams range from 1.759gr / cc - 2.236gr / cc. On pseudosection 2D cross section there are also three coal seams with high resistivity values ranged between 580 - >1000 ohm.m and can be classified as bituminous to anthracite coal. Based on the well log correlation, it shows that the coal seams has continuity direction from southwest to northeast and the continuity of coal seams is also shown on the 3D modeling of resistivity geoelectric, that the continuity of coal seam on the research area relatively from southwest to northeast.

Keywords: Geoelectric Resistivity Method, Gamma Ray Log, Density Log, Characteristics of Coal, Continuity of Coal Seam