

INTISARI

IDENTIFIKASI SEBARAN BATUBARA MENGGUNAKAN METODE GEOLISTRIK KONFIGURASI *DIPOLE-DIPOLE* DI AREA LAPANGAN “TJ”

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Batubara merupakan salah satu sumber energi yang sangat penting di Indonesia. Salah satu daerah yang memiliki potensi sumber daya batubara di Indonesia adalah Kabupaten Muara Enim, Provinsi Sumatra Selatan. Kegiatan eksplorasi batubara terus dilakukan untuk menunjang kegiatan eksploitasi batubara di daerah tersebut. Salah satu metode geofisika yang dapat digunakan dalam eksplorasi batubara adalah metode geolistrik. Metode geolistrik dapat digunakan untuk mengetahui persebaran batubara berdasarkan kontras nilai resistivitas bawah permukaan. Penelitian telah dilakukan dengan menggunakan metode geolistrik konfigurasi *dipole-dipole* yang bertujuan untuk mengidentifikasi litologi dan sebaran batubara berdasarkan nilai resistivitas bawah permukaan. Penelitian dilakukan di area lapangan “TJ” yang terletak di Kabupaten Muara Enim, Provinsi Sumatra Selatan. Pengukuran menggunakan 4 lintasan yang saling berpotongan, dimana 2 lintasan berorientasi utara-selatan, 1 lintasan berorientasi barat-timur, dan 1 lintasan berorientasi barat daya - timur laut. Setiap lintasan menggunakan 2 jenis spasi, yaitu 20 m dan 40 m antar elektroda dengan $n=8$. Berdasarkan hasil pengukuran resistivitas tiap lintasan dan perbandingan dengan data sumur bor, diketahui bahwa litologi bawah permukaan daerah penelitian terbagi atas 4 jenis batuan, yaitu batulempung dengan nilai resistivitas $<9,85 \Omega\text{m}$, batubara dengan rentang nilai resistivitas $9,85-34,70 \Omega\text{m}$, tuff dengan nilai resistivitas $<34,70 \Omega\text{m}$ dan batupasir dengan nilai resistivitas $>9,85 \Omega\text{m}$. Berdasarkan korelasi penampang litologi 3D diketahui terdapat kemenerusan lapisan batubara dengan orientasi kemiringan ke arah barat laut. Setelah dilakukan perhitungan cadangan menggunakan metode *cross section*, diperkirakan cadangan batubara yang ada di daerah penelitian pada kedalaman 90 m adalah sebesar 860.000 ± 45.600 ton batubara.

Kata Kunci: geolistrik, resistivitas, *dipole-dipole*, batubara

ABSTRACT

IDENTIFICATION OF COAL DISTRIBUTION USING DIPOLE-DIPOLE GEOELECTRICAL METHOD AT “TJ” FIELD AREA

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Coal is one of important energy resource for Indonesia. Muara Enim reGENCY in South Sumatra Province is one of many areas that has coal resource potential in Indonesia. Coal exploration activities are continuously carried out to support its coal exploitation in that area. One of the geophysical methods that can be used in coal exploration is geoelectric method. Geoelectric method can be used to determine the coal distribution based on the contrast value of the subsurface resistivity in a certain area. In this research that had been done by using dipole-dipole configuration of geoelectric method to identify the lithology and coal distribution based on the subsurface resistivity value. The research was conducted in ‘TJ’ field area which located in Muara Enim Regency, South Sumatra Province. The measurement was done by using 4 intersecting lines, where 2 of the lines were north-south oriented, 1 line was west-east oriented and the other one was southwest-northeast oriented. Every line used 2 types of spacing between electrodes, at 20 m and 40 m spacing with $n=8$. Based on the results of the resistivity measurement for each line and the comparison with the borehole data, it can be concluded that the subsurface lithologies of the study area can be divided into 4 types of rocks, those are claystone with resistivity value $<9.85 \Omega\text{m}$, coal with resistivity range value $9.85 - 34.70 \Omega\text{m}$, tuff with resistivity value $<34.70 \Omega\text{m}$ and sandstone with resistivity value $>9.85 \Omega\text{m}$. Based on the 3D correlation sections, it is known that there is a coal continuity with northwest orientation. After calculating the coal reserves using the cross sections method, the estimated coal reserves at the research area in 90 m depth is obtained $860,000 \pm 45,600$ ton of coal.

Keywords: geoelectrical, resistivity, dipole-dipole, coal