

ABSTRACT

2D AND 3D GEOELECTRICAL MODELING FOR ANDESIT ROCK VOLUMETRICS CALCULATION IN SUKARAME VILLAGE, PUNDUH PIDADA SUB-DISTRICT, PESAWARAN DISTRICT, LAMPUNG PROVINCE

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Research has been carried out on the analysis of geoelectrical resistivity data to identify the distribution of andesite rocks in Sukarame Village, Punduh Pidada Subdistrict, Pesawaran District, Lampung Province, using a Wenner - Wenner configuration of geoelectric resistance method. This study aims to map the distribution of andesite rock layers in the study area based on resistivity data. Analyze and calculate andesite rock reserves in the study area based on the geoelectrical 3D model. Comparing the estimation of andesite rocks based on the calculation by using cross section methods and contour methods to estimates andesite rock reserves based on geoelectrical 3D models. The measurement path in the study area consists of 10 tracks with each 186-meter track length. The results of the interpretation indicate that the estimation of andesite rock layers at the study site has a resistance value of around 80 m to more than 220 m as evidenced by the discovery of several andesite rock outcrops in the study area (*in situ*). Volumes estimation of andesite rocks based on the geoelectric 3D model are $1.754.530 \text{ m}^3$. The estimated volumetric reserves of andesite rocks based on the cross section method are $9.619.461 \text{ m}^3$ and based on the contour method are $6.303.818 \text{ m}^3$. Estimation calculation of subsurface andesite rocks based on 3D geoelectric modeling is more reliable than cross section methods and contour methods.

Keywords: Geoelectric, rock resistivity, Wenner-Wenner, Volumetric, Andesite, Punduh Pidada, Cross Section, contour.

ABSTRAK

PEMODELAN 2D DAN 3D GEOLISTRIK UNTUK PERHITUNGAN VOLUMETRIK BATUAN ANDESIT DI DESA SUKARAME KECAMATAN PUNDUH PIDADA KABUPATEN PESAWARAN PROVINSI LAMPUNG

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Telah dilakukan penelitian mengenai analisa data geolistrik tahanan jenis untuk identifikasi pola sebaran batuan andesit di Desa Sukarame Kecamatan Punduh Pidada Kabupaten Pesawaran Provinsi Lampung dengan menggunakan metode geolistrik tahanan jenis konfigurasi *wenner-wenner*. Penelitian ini bertujuan untuk memetakan persebaran lapisan batuan andesit di daerah penelitian berdasarkan data tahanan jenis. Menganalisis dan menghitung cadangan batuan andesit di daerah penelitian berdasarkan model 3D geolistrik. Membandingkan estimasi cadangan batuan andesit berdasarkan perhitungan metode *cross section* dan metode kontur dengan estimasi cadangan batuan andesit berdasarkan model 3D geolistrik. Lintasan pengukuran di daerah penelitian terdiri dari 10 lintasan dengan masing-masing panjang lintasan 186 meter. Hasil interpretasi menunjukkan bahwa pendugaan lapisan batuan andesit di lokasi penelitian memiliki nilai tahanan jenis sekitar 80 Ωm sampai lebih dari 220 m yang dibuktikan dengan ditemukannya beberapa singkapan batuan andesit pada daerah penelitian (*in situ*). Estimasi cadangan volumetrik batuan andesit berdasarkan model 3D geolistrik sebesar 1.754.530 m^3 . Estimasi cadangan volumetrik batuan andesit berdasarkan perhitungan metode *cross section* sebesar 9.619.461 m^3 dan berdasarkan perhitungan metode kontur sebesar 6.303.818 m^3 . Perhitungan estimasi cadangan batuan andesit bawah permukaan berdasarkan pemodelan 3D geolistrik lebih *reliable* dibandingkan dengan metode *cross section* dan metode kontur.

Kata kunci: Geolistrik, tahanan jenis batuan, *Wenner-wenner*, Volumetrik, Andesit, Punduh Pidada, *Cross Section*, Kontur.