ABSTRAK

PENDUGAAN KEBERADAAN MINERALISASI BERDASARKAN ANALISIS DATA METODE POLARISASI TERINDUKSI DI DESA SADAHAYU, KECAMATAN MAJENANG, KABUPATEN CILACAP, PROVINSI JAWA TENGAH

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Emas merupakan suatu jenis mineral yang memiliki royalti yang cukup tinggi dan menjadi salah satu unsur yang sangat dicari oleh banyak orang. Menurut informasi pada laman Kementerian Energi dan Sumber Daya Mineral (2012), wilayah Cilacap merupakan daerah yang memiliki potensi emas yang belum digarap. Oleh karena itu dilakukan penelitian menggunakan metode geolistrik *Time Domain Induced Polarization* (TDIP) untuk mengetahui lokasi-lokasi yang berpotensi adanya emas dengan melokalisir zona mineralisasi di lokasi penelitian. Penelitian ini dilakukan di Desa Sadahayu, Kecamatan Majenang, Kabupaten Cilacap, Jawa Tengah.

Metode geolistrik TDIP merupakan metode yang mendeteksi polarisasi listrik pada permukaan mineral-mineral logam di bawah permukaan bumi (Syukri, 2020). Pengukuran TDIP dilakukan pada 6 lintasan yang mengarah baratlaut-tenggara dengan konfigurasi *dipole-dipole*. Dari pengukuran TDIP dilakukan pengolahan dan didapatkan parameter berupa nilai resistivitas dan chargeabilitas. Dari kedua parameter diolah menggunakan *Res2Dinv* dan *Rockwork 16* sehingga didapatkan penampang resistivitas dan chargeabilitas yang menggambarkan kondisi bawah permukaan serta model 3D yang menunjukkan korelasi antar lintasan.

Berdasarkan interpretasi data TDIP, litologi bawah permukaan disusun oleh *Soil*, Tuff, Breksi dan Batuan Beku Andesit dengan nilai resistivitas bawah permukaan, diklasifikasikan resistivitas rendah <155 Ωm sebagai Soil dan Tuff, resistivitas sedang 155 – 337 Ωm sebagai Breksi, kemudian resistivitas tinggi >337 Ωm sebagai Batuan Beku Andesit. Keberadaan mineralisasi terdapat di lintasan 2, 3, 4 dan 6 di kedalaman >27 meter dengan nilai chargeabilitas >36,3 msec. Estimasi volume cadangan mineral logam di lokasi penelitian sebesar 14.270.000 m^3. Mineralisasi di daerah penelitian disebabkan oleh proses hidrotermal yang dikontrol oleh aktivitas magmatisme berupa intrusi andesit.

Kata kunci : Chargeabilitas, Metode Geolistrik, Mineralisasi, Resistivitas,

ABSTRACT

ESTIMATION OF THE EXISTENCE OF MINERALIZATION BASED ON DATA ANALYSIS OF INDUCED POLARIZATION METHOD IN SADAHAYU VILLAGE, MAJENANG DISTRICT, CILACAP DISTRICT, CENTRAL JAVA PROVINCE

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Gold is a type of mineral that has quite high royalties and is an element that is highly sought after by many people. According to information on the website of the Ministry of Energy and Mineral Resources (2012), the Cilacap area is an area that has untapped gold potential. Therefore, research was carried out using the Geoelectric Time Domain Induction Polarization (TDIP) method to determine locations that have the potential for gold by localizing the mineralization zone at the research location. This research was conducted in Sadahayu Village, Majenang District, Cilacap Regency, Central Java.

The TDIP geoelectric method is a method that detects electrical polarization on the surface of metal minerals below the earth's surface (Syukri, 2020). TDIP measurements were carried out on 6 trajectories leading northwest-southeast with a dipole-dipole configuration. From the TDIP measurements, processing is carried out and parameters are obtained in the form of resistivity and chargeability values. The two parameters are processed using Res2Dinv and Rockwork 16 to obtain cross-sectional resistivity and chargeability which describe subsurface conditions as well as a 3D model which shows the correlation between trajectories.

Based on the interpretation of TDIP data, subsurface lithology is composed of Soil, Tuff, Breccia and Andesite Igneous Rock with subsurface resistivity values, classified as low resistivity <155 Ωm as Soil and Tuff, medium resistivity 155 – 337 Ωm as Breccia, then high resistivity >337 Ωm as Andesite Igneous Rock. The presence of mineralization is found in lines 2, 3, 4 and 6 at a depth of >27 meters with a chargeability value of >36.3 msec. The estimated volume of metallic mineral reserves at the research location is 14,270,000 m3. Mineralization in the research area is caused by hydrothermal processes which are controlled by magmatism activity in the form of andesite intrusions.

Keyword : *Chargeability, Geoelectrical Method, Mineralization, Resistivity*