Aplikasi Metode Resistivitas dan Induced Polarization untuk Memetakan Persebaran Endapan Bijih Besi di Kecamatan Penanggalan, Kabupaten Aceh Singkil, Nanggroe Aceh Darussalam = Application of Resistivity and Induces Polarization Methods to Mapping The Distribution of Iron Ore Deposit in Penanggalan District, Aceh Singkil Regency, Nanggroe Aceh Darussalam

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Abstrak

Penelitian dilakukan untuk memetakan persebaran keberadaan zona mineralisasi endapan bijih besi di Kecamatan Penanggalan, Kabupaten Aceh Singkil, Nanggroe Aceh Darussalam menggunakan metode resistivitas dan induced polarization. Terdapat sembilan lintasan pengukuran geolistrik menggunakan konfigurasi Wenner dan Panjang lintasan adalah 235 m. Metode resistivitas digunakan untuk identifikasi zona lemah dan jenis litologi, sementara metode IP yang mengukur parameter chargeability dan metal factor digunakan untuk mengidentifikasi zona mineralisasi bijih besi. Identifikasi zona lemah yang berupa struktur dilakukan karena merupakan faktor terbentuknya endapan bijih besi melalui proses hidrotermal. Pengolahan data pada penelitian ini dilakukan dengan metode inversi dua dimensi dan pemodelan visual tiga dimensi dengan data hasil gridding. Berdasarkan hasil pengolahan, zona mineralisasi endapan bijih besi pada lokasi penelitian ini memiliki korelasi nilai resistivitas rendah, chargeability tinggi, dan metal factor tinggi. Secara keseluruhan, pola persebaran endapan bijih besi pada lokasi penelitian dapat dibedakan menjadi blok A (TM03, TM05, TM06, TM08, TM10) dan blok B (TM04, TM07, TM09, TM11). Potensi endapan bijih besi pada blok A ditemukan menerus dari TM05 hingga TM10 dan lebih terpusat pada area sekitar TM08 dan TM10. Sementara pada blok B ditemukan spoted pada beberapa zona di sepanjang blok.

......The study was conducted to map the distribution of the mineralized zone of iron ore deposits in Penanggalan District, Aceh Singkil Regency, Nanggroe Aceh Darussalam using resistivity and induced polarization methods. There are nine geoelectrical measurement paths using the Wenner configuration and the length of the track is 235 m. The resistivity method is used to identify weak zones and lithological types, while the IP method which measures chargeability and metal factor parameters is used to identify iron ore mineralization zones. Identification of the weak zone in the form of a structure is carried out because it is a factor in the mineralization of iron ore deposits through the hydrothermal process. The data processing in this study was carried out using a two-dimensional inversion method and three-dimensional visual modeling with gridding data. Based on the processing results, the mineralized zone of iron ore deposits at the research location has a correlation of low resistivity values, high chargeability, and high metal factor. Overall, the distribution pattern of iron ore deposits at the study site can be divided into block A (TM03, TM05, TM06, TM08, TM10) and block B (TM04, TM07, TM09, TM11). The potential for iron ore deposits in block A is found continuously from TM05 to TM10 and is more concentrated in the area around TM08 and TM10. Meanwhile in block B, it was found spoted in several zones along the block.