Eksplorasi Mineral Endapan Volcanogenic Massive Sulphide dengan Metode Resistivitas dan Polarisasi Terimbas = Mineral Exploration on Volcanogenic Massive Sulphide Deposit Exploration using Resistivity Method and Induced Polarization

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Abstrak

Penelitian ini dilakukan untuk mengevaluasi prospek endapan VMS di area penelitian ‘X’ Kabupaten Bone, Sulawesi Selatan dengan menggunakan metode resistivitas yang terintegrasi dengan polarisasi terimbas. Terdapat 15 lintasan pengukuran dengan konfigurasi wenner. Panjang lintasan pengukuran 750 meter, spasi elektroda 10 meter, dan jarak antar lintasan 100 meter. Penelitian ini dilakukan dengan metode inversi dua dimensi dengan metode inversi least-squares smoothness-constrained, dan visualisasi tiga dimensi dengan metode interpolasi inverse distance weighting. Area penelitian ini memiliki persebaran nilai resistivitas yang bervariasi mulai dari 6.12 ohm.m sampai 850 ohm.m dan memiliki sebaran nilai chargeability yang bervariasi mulai dari 0 msec sampai 12 msec. Kombinasi nilai resistivitas rendah dan chargeability rendah berkorelasi dengan zona lemah sebagai indikator alterasi hidrotermal dan berfungsi sebagai aliran/sirkulasi fluida hidrotermal dalam membawa mineral sulfida. Sementara integrasi nilai resistivitas menengah dan chargeability tinggi berkorelasi akumulasi mineral sulfida yang diinterpretasikan sebagai area potensi endapan VMS. Secara keseluruhan, area penelitian memiliki potensi endapan VMS dengan pola terpusat pada bagian timur area penelitian. Zona potensi endapan VMS yang direkomendasikan adalah zona yang terletak di lintasan E, F, G, dan M.

.....This study was conducted to evaluate the prospect of VMS deposits in the research area 'X' in Bone District, South Sulawesi using the resistivity method integrated with induced polarization. There are 15 measurement lines with a wenner configuration. The length of the measurement line is 750 meters, electrode spacing is 10 meters, and the distance between lines is 100 meters. This study was conducted using a two-dimensional inversion method with a least-squares smoothness-constrained inversion method, and three-dimensional visualization using an inverse distance weighting interpolation method. This research area has a distribution of resistivity values ranging from 6.12 ohm.m to 850 ohm.m and has a chargeability value distribution ranging from 0 msec to 12 msec. A combination of low resistivity and low chargeability values is correlated with weak zones as indicators of hydrothermal alteration and function as a flow/circulation of hydrothermal fluids carrying sulfide minerals. While the combination of moderate resistivity values and high chargeability values is correlated with the accumulation of sulfide minerals, which are interpreted as potential VMS deposit areas. Overall, the research area has potential VMS deposits with a pattern centered on the eastern part of the research area. The recommended potential VMS deposit zone is the zone located on lines E, F, G, and M.