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Abstract Index	
DOI: 10.30556/imj.Vol24.No1.2021.1133 Sidiq, Muhammad; Yatini, Y. and Fajrin, Agus (Universitas Pembangunan Nasional Veteran Yogyakarta) Application of Magnetic and Induced Polarization Method for Delineating Gold-Bearing Vein Zones at Cibaliung, Pandeglang Regency, Banten <i>Aplikasi Metode Magnetik dan Induced Polarization untuk Mendelineasi Zona Vein Mengandung Emas di Cibaliung, Kabupaten Pandeglang, Banten</i> IMJ, Vol. 24, No. 1, April 2021, P. 1-14 Magmatic processes occurred during the Miocene period caused the formation of epithermal gold deposits in Cibaliung area. The deposit has previously been investigated through geological surveys which basically only covers the surface aspect, so in this study a subsurface analysis was carried out through magnetic and IP surveys to determine the distribution and continuity of the gold deposits. The magnetic survey was conducted over an area of about 3 km² with sampling interval 20 m east and 100 m north. The magnetic data were processed using Oasis Montaj with magnetic intensity map as an output, which was then interpreted to determine the presence of structures and magnetite destruction zones as mineralization clues. The IP survey was conducted on 20 east-west oriented lines with length of about 1.2 km. The electrode configuration used is Wenner with 25 m spacing. IP data were processed using RES2DINV software to eliminate bad datum points and invert the apparent chargeability values into the true ones. IP data are then interpreted to clearly determine the position, direction, and distribution of gold mineralization body by detecting the presence of sulfide minerals as ligands carrying gold. Magnetic data analysis shows that gold mineralization tends to occur at low magnetic anomaly, ranging from 37 nT to 240 nT and generally associated with northwest-oriented structures. The mineralization zone is found in four main vein zones with resistivity and chargeability values < 51 Ωm and > 50 ms.e failure of 190.000 m³ that located at the north of the pit. Keywords: hydrothermal alteration, gold mineralization, susceptibility, resistivity, chargeability	DOI: 10.30556/imj.Vol24.No1.2021.1131 Ramdhani, Muhammad R; Ibrahim, Muhammad A.; Siregar, Hans E. A. and Rahadinata, Tony (Center for Mineral, Coal and Geothermal Resources) Shallow Seismic Reflection Survey for Imaging Deep-Seated Coal Layer – Case Study from Muara Enim Coal <i>Survei Seismik Refleksi Dangkal untuk Menggambarkan Lapisan Batubara Bawah Permukaan – Studi Kasus Batubara Muara Enim</i> IMJ, Vol. 24, No. 1, April 2021, P. 15-29 Indonesia has a great potential for deep-seated coal resources. To assist and support the deep-seated coal exploration, a shallow seismic reflection method is applicable for this purpose. This study has conducted a shallow seismic reflection method in Musi Banyuasin Regency, South Sumatera Province. The Muara Enim coal target varies from 100 to 500 meters from the surface. The thickness of the coal layer varies from 2 to 10.65 meters. This study uses 48 channels with 14 Hz single geophone and Mini-Sosie as the energy source. The receiver and source interval is 15 meters. This study uses a fixed receiver and moving source configuration. From the interpreted seismic section, this study identified a deep-seated coal layer target. These layers are Mangus, Burung, Benuang, Kebon and Benakat layers. A simple interpretation is analyzed by combining the seismic amplitude characteristics and the thickness of the coal layer from the borehole data. From the interpreted seismic section, deep-seated coal layer targets have strong amplitude characteristics and are continuous from southwest to the northeast with a down-dip of around 20-30°. This study helps to inform the operator companies who develop the utilization of deep-seated coal (coalbed methane, underground coal gasification and underground coal mining) about the effective and proper geophysical method for imaging deep-seated coal layer. Keywords: shallow seismic reflection, deep-seated coal, Muara Enim formation

DOI: 10.30556/imj.Vol24.No1.2021.1173 Idrus, Arifudin and Fadlin (Universitas Gadjah Mada, Yogyakarta, Universitas Jenderal Soedirman, Purwokerto) Lithogeochemical Exploration for Delineating Primary Gold Occurrences in West Kao Area, North Halmahera District, North Maluku Province <i>Eksplorasi Litogeokimia untuk Mendelineasi Keberadaan Emas Primer di Daerah Kao Barat, Kabupaten Halmahera Utara, Provinsi Maluku Utara</i> IMJ, Vol. 24, No. 1, April 2021, P. 31-45 Halmahera Island retains several gold deposits. One of the gold deposits is called as low sulphidation epithermal (LSE) quartz veins which is currently being mined and is situated in the Gosowong goldfield. The veins mostly originated in N-S and NNE-SSW direction. This study is aimed to determine the prospect area in the northern portion of Gosowong goldfield covering the West Kao sub district based on surface mapping and rock/float-and BLEG stream sediment survey. A total of 16 rock/vein float and 120 BLEG samples were analyzed by FA/AAS and CNO₂ cyanide leach methods, respectively. The study area is occupied by tuffaceous sandstone, andesite, porphyritic andesite and lava andesite units. In the eastern part, tuffaceous sandstone is suffered from argillic and propylitic alteration, which may be controlled by the NW-SE-trending structures. The gold grade of rock/float samples is up to 0.044 ppm. BLEG data indicates a calculated threshold of 10 ppb for Au and 72 ppb for Ag. The highest Au and Ag contents (anomalies) are identified in the eastern part of the study area. This is spatially (and maybe genetically) related to the argillic-altered tuffaceous sandstone, structures and occurrences of quartz vein floats. To follow up this finding, a detailed exploration is recommended to be conducted within the prospect area. Keywords: BLEG, exploration, geochemical anomaly, Halmahera	DOI: 10.30556/imj.Vol24.No1.2021.1044 Deny, Tandidatu T. and Hariyadi, Sundek (Kutai Kartanegara University, Tenggarong, East Kalimantan) Stability Study of Open Mine Slopes at Pit 22 GN PT Kitadin Site Embalut, Kutai Kartanegara Regency, East Kalimantan Province <i>Kajian Kestabilan Lereng Tambang Terbuka pada Pit 22 GN PT Kitadin Site Embalut, Kabupaten Kutai Kartanegara, Provinsi Kalimantan Timur</i> IMJ, Vol. 24, No. 1, April 2021, P. 47-56 The stability of slope, both on the slope of work and the final slope, is a very important aspect of slope stability, both on the slope of work and the final slope in open pit mining activities. The inconsistency of the slopes will result in the collapse of rocks around the excavation site. This happens because the condition of the rock when it has not been excavated is generally balanced. However, due to the discontinuous patterns that occur other than naturally and also due to the mining activities such as excavation, blasting and others, cause a reduction in the retaining force of the rock on the slope results in the equilibrium of the force tends to shift and is not balanced. Study of the stability of the open pit highwall slope at PIT 22 GN PT Kitadin Site Embalut, Kutai Kartanegara Regency, East Kalimantan Province was carried out with the aim to know the rock characteristics, to calculate slope geometry stable safety factors, and to recognize the type of landslide using a bishop method. The results of the modeling consist of several heights and slopes, as well as angles that is formed. Section AA' has a safety factor value of 1.387, section BB has a safety factor of 1.482, section BB' has a safety factor value of 1.390, section DD' has a safety factor value of 1.318, section EE has a safety factor value of 2.381, section FF' has a safety factor value of 2.426, section GG' has a safety factor value of 2.424, section HH 'has a safety factor value of 2.339. Keywords: highwall slope stability, open mine, pit 22 GN, coal
DOI: 10.30556/imj.Vol24.No1.2021.1192 Sesotyo, Priyo A.; Nur, Muhammad and Muraza, Oki (Semarang University; Diponegoro University, Semarang; PT Pertamina (Persero)) Analysis of Potential Energy and Environmental Impact from Coal Gasification Through Simulation of Plasma Gasification Process of Indonesian Low-Rank Coal <i>Analisis Potensi Energi dan Dampak Lingkungan Gasifikasi Batubara Melalui Simulasi Proses Gasifikasi Plasma Batubara Indonesia Kualitas Rendah</i> IMJ, Vol. 24, No. 1, April 2021, P. 57-70 Indonesia's coal reserve is abundant with its lower price and widely distributed than oil and natural gas. However, the coal emits high carbon dioxide gas (CO₂) and sulfur compounds (H₂S, SO_x) to the environment during utilization. Plasma gasification can overcome those	lacks using the external electric energy through a plasma torch. The chemical properties of coal have impacts on the energy content and environmental benchmarking. Using steam as a gasifying agent should be adequate to produce H₂ and CO syngas. A research has been carried out to analyze and understand the benefit of using different gasifying agent for maximizing the H₂ production and minimizing the environmental impact. Pure Steam (PS) gasifying agent to coal ratio of 0.4 has shown 43.76% H₂ composition in syngas and cold gasification efficiency (CGE) with 37.71%. The PS to coal ratio of 0.2 has a significant carbon conversion efficiency of 4.75% and the PS to coal ratio of 0.6 has a gross energy potential of 86.5 kW. Using such the PS is significantly better than the mixture of steam oxygen (SO) as the gasifying agent since it needs to have a greater SO flow rate to have the SO to coal ratio of 1.00.trihydrate [Al(OH)₃], bauxite, and aluminum metal. Keywords: plasma gasification, environmental impact; low-rank coal; syngas; energy potential