

ABSTRACT

APPLICATION OF WENNER-SCHLUMBERGER CONFIGURATION ON GEOELECTRIC RESISTIVITY METHOD FOR SUBSURFACE LITHOLOGY AND WAY RATAI GEOTHERMAL FLUID IDENTIFICATION IN PADOK MANIFESTATION AREA, PADANG CERMIN, PESAWARAN REGENCY, LAMPUNG PROVINCE

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Research area is located in Padang Cermin Sun-District, Pesawaran Regency, Lampung Province. Manifestation in research area is hot water pool with surface temperatures reach 90⁰C. Data acquisition has been done by Wenner-Schlumberger configuration with 5 acquisition line. Line 1, line 4 and line 5 have 280 meters length. Line 2 have 240 meters length and line 3 have 320 meters length with a spacing of each electrodes in each lines is every 5 meters. The objective of this research are ⁽¹⁾ Examining the geochemical contaminant and fluid types, ⁽²⁾ Identifies the geothermal fluid based on 2D and 3D resistivity data analysis, also ⁽³⁾ Identifies the layer of rock in Padok manifestation area based on 2D and 3D subsurface resistivity section. Subsurface lithology in research area generally divides into 4 parts. ⁽¹⁾ Which is hot water fluid with mean resistivity value between 1 Ω m into 3 Ω m and based on geochemistry data the fluid type is chloride water, ⁽²⁾ Surface sediment with resistivity value between 6 Ω m into 50 Ω m and identified as swamp sediment and alluvium sediment divides into gravels, pebbles, sands, clay and peat, ⁽³⁾ Gravels, pebbles, sands, clay and peat with resistivity value between 50 Ω m into 100 Ω m, ⁽⁴⁾ Igneous rock (andesite-basalt) with resistivity value more than 100 Ω m.

Kata Kunci : Geoelectric, Hot Water Fluid, Padok manifestation, Resistivity, Rock layers, Wenner-Schlumberger.

ABSTRAK

APLIKASI METODE GEOLISTRIK RESISTIVITAS KONFIGURASI WENNER-SCHLUMBERGER UNTUK MENGIDENTIFIKASI LITOLOGI BATUAN BAWAH PERMUKAAN DAN FLUIDA PANAS BUMI WAY RATAI DI AREA MANIFESTASI PADOK DI KECAMATAN PADANG CERMIN KABUPATEN PESAWARAN PROPINSI LAMPUNG

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Daerah penelitian terletak di Kecamatan Padang Cermin Kabupaten Pesawaran Provinsi Lampung. Manifestasi di area penelitian berbentuk kolam air panas dengan suhu permukaan mencapai 90°C . Akuisisi data pengukuran dilakukan dengan konfigurasi *Wenner-Schlumberger* berjumlah 5 lintasan. Lintasan 1, lintasan 4 serta lintasan 5 memiliki panjang lintasan 280 meter. Lintasan 2 memiliki panjang lintasan 240 meter dan lintasan 3 memiliki panjang lintasan 320 meter dengan spasi elektroda setiap lintasan pengukuran yaitu 5 meter. Penelitian ini bertujuan ⁽¹⁾ Meneliti kandungan geokimia dan jenis fluida, ⁽²⁾ Mengidentifikasi fluida panas bumi berdasarkan analisis data resistivitas 2D dan 3D dan ⁽³⁾ Mengidentifikasi lapisan batuan manifestasi Padok berdasarkan penampang bawah permukaan resistivitas 2D dan 3D. Litologi batuan bawah permukaan daerah penelitian secara umum dibagi menjadi 4 bagian yaitu ⁽¹⁾ Fluida air panas memiliki nilai resistivitas rata-rata $1\ \Omega\text{m}$ sampai dengan $3\ \Omega\text{m}$. Berdasarkan data geokimia jenis fluida daerah penelitian adalah air klorida. ⁽²⁾ Nilai resistivitas $6\ \Omega\text{m}$ sampai dengan $50\ \Omega\text{m}$ diidentifikasi sebagai endapan permukaan diantaranya endapan rawa, dan endapan alluvium terdiri dari kerakal, kerikil, pasir, lempung, dan gambut. ⁽³⁾ Nilai resistivitas $50\ \Omega\text{m}$ sampai dengan $100\ \Omega\text{m}$ diidentifikasi sebagai kerakal, kerikil, pasir dan lempung. ⁽⁴⁾ Batuan lava (andesit-basalt) memiliki nilai resistivitas di atas $100\ \Omega\text{m}$.

Kata Kunci : Fluida Air Panas, Geolistrik, Lapisan Batuan, Manifestasi Padok, Resistivitas, *Wenner-Schlumberger*,