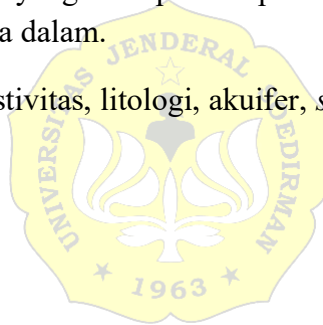


ABSTRAK

Penelitian ini dilakukan untuk mengetahui struktur geologi bawah permukaan dan keberadaan akuifer berdasarkan data geolistrik resistivitas di daerah perkebunan semangka Desa Plana, Kecamatan Somagede, Kabupaten Banyumas. Metode yang digunakan adalah metode geolistrik tahanan jenis konfigurasi *Schlumberger* pada tiga titik *sounding*, dengan panjang bentangan 200 meter, dan posisi geografis di antara 7°29'14"S dan 109°21'36"E - 7°29'15"S dan 109°21'37"E - 7°29'13"S dan 109°21'33"E . Data lapangan diolah menggunakan perangkat lunak *Progress 3.0* melalui tahapan *forward modeling* dan inversi guna memperoleh model litologi bawah permukaan dan distribusi resistivitas batuan. Hasil interpretasi menunjukkan bahwa litologi penyusun bawah permukaan terdiri atas lempung, lanau, pasir, kerikil, batupasir, dan alluvium. Keberadaan akuifer ditemukan pada lapisan ketiga titik sounding 1 (kedalaman 9,67–32,12 m; resistivitas 435,65 Ω m), lapisan kedua titik sounding 2 (kedalaman 7,67–68,65 m; resistivitas 236,53 Ω m), dan lapisan keempat titik sounding 3 (kedalaman >57,37 m; resistivitas 188,26 Ω m). Berdasarkan hasil tersebut, dapat disimpulkan bahwa wilayah Desa Plana memiliki potensi keberadaan akuifer yang cukup baik pada lapisan berlitologi kasar di kedalaman menengah hingga dalam.

Kata kunci: geolistrik, resistivitas, litologi, akuifer, *schlumberger*



ABSTRACT

This study was conducted to determine the subsurface geological structure and the existence of aquifers based on resistivity geophysical data in the watermelon plantation area of Plana Village, Somagede District, Banyumas Regency. The method used was the Schlumberger configuration resistivity geophysical method at three sounding points, with a line length of 200 meters, and geographical coordinates between 7°29'14"S and 109°21'36"E - 7°29'15"S and 109°21'37"E - 7°29'13"S and 109°21'33"E. Field data were processed using Progress 3.0 software through forward modeling and inversion stages to obtain a subsurface lithology model and rock resistivity distribution. The interpretation results show that the subsurface lithology consists of clay, silt, sand, gravel, sandstone, and alluvium. Aquifers were found in the third layer of sounding point 1 (depth 9.67–32.12 m; resistivity 435.65 Ω m), the second layer of sounding point 2 (depth 7.67–68.65 m; resistivity 236.53 Ω m), and the fourth layer of sounding point 3 (depth >57.37 m; resistivity 188.26 Ω m). Based on these results, it can be concluded that the Plana Village area has good potential for aquifers in coarse lithology layers at medium to deep depths.

Keywords: geolistrik, resistivity, lithology, aquifer, schlumberger

