Karakteristik Geologi Teknik Lapangan EDT C, Desa Jagakarsa, Kabupaten Lebak, Provinsi Banten = Engineering Geological Characteristics of EDT C Field, Jagakarsa Village, Lebak Regency, Banten Province

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Abstrak

Gunung Endut merupakan salah satu daerah dengan potensi panas bumi kualitas baik mencapai 80 Mwe. Kegiatan pengembangan panas bumi di daerah Gunung Endut telah menentukan lokasi titik pembangunan tapak sumur pembangkit panas bumi, salah satunya adalah lapangan EDT C. Pembangunan tapak sumur ini diperlukan penelitian lebih lanjut terhadap kondisi geologi teknik untuk mengetahui karakteristik tanah. Penelitian ini bertujuan untuk mengetahui karakteristik geologi teknik dan memetakan kondisi geologi teknik daerah penelitian. Metode yang digunakan adalah metode lapangan dan metode laboratorium. Metode lapangan dilakukan untuk mendapatkan informasi di lapangan seperti tingkat pelapukan dan pengambilan sampel tanah. Metode laboratorium terdiri atas uji analisis ukuran butir, uji batas Atterberg, dan uji kuat geser langsung untuk memperoleh data terkait karakteristik geologi teknik. Hasil lapangan menunjukkan satuan geomorfologi terdiri atas dua satuan, yaitu Satuan Perbukitan Tinggi Vulkanik Berlereng Curam – Sangat Curam dan Satuan Perbukitan Tinggi Vulkanik Berlereng Landai – Curam. Hasil laboratorium menunjukkan bahwa pada uji berat kering memiliki berat air = 294.68 – 373.49 gr dengan persentase kadar air (Wn) = 42 – 60%. Untuk uji ukuran butir menunjukkan pasir berbutir kasar dengan nilai fraksi butiran > 2 mm = 2 – 18%, fraksi pasir kasar = 67 – 80%, fraksi pasir halus = 9 – 16%, dan fraksi lanau = 3 – 4%. Hasil batas Atterberg menunjukkan nilai batas cair (LL) = 48 – 64%, batas plastis (PL) = 39 – 46%, indeks plastisitas (PI) = 6 – 19%, indeks cair (LI) = 0.21 – 2.52%, dan aktivitas (A) = 1.346 – 5.450. Hasil uji kuat geser langsung menunjukkan nilai sudut geser dalam () = 9.62 – 44.95 dan nilai kohesi (c) = 0.0443 – 5.6750 kN/m2 . Kemudian diperoleh satuan geologi teknik diantaranya Satuan Batuan Andesit Lapuk Ringan – Kuat, Satuan Tuff Lapuk Sempurna, Satuan Pasir Gradasi Baik (SW), dan Satuan Kolovium Lapuk Kuat – Sempurna. Pembangunan tapak sumur dapat memperhatikan desain lubang sumur, akses jalan, relief tinggi dan curam, dan hasil pengujian laboratorium.

.....Mount Endut is a geothermal potentials area in Indonesia with good quality reaching 80 Mwe so that it can meet the electrical energy needs of Java Island. Geothermal development activities in the Mount Endut area are in the stage of determining the location of the Wellpad Geothermal construction point, one of which is the EDT C Field. Construction of the Geothermal Wellpad requires further research on engineering geology conditions to determine soil characteristics so that construction can last longer. For this reason, this study aims to determine the engineering geology characteristics and map the geological conditions of the research area. The methods used in the study are field methods and laboratory methods. Field methods are carried out to obtain the weathering level and soil sampling. Laboratory methods are divided into grain size analysis tests, Atterberg Limit, and direct shear strength tests to obtain engineering geology characteristics. Field results show that the geomorphological unit consists of two units, the Steep – Very Steep Marbled Volcanic High Hill Unit and the Ramps – Steep Marbled Volcanic High Hill Unit. The laboratory results showed that the dry weight test had a water weight = 294.68 – 373.49 gr with a percentage of water content

(Wn) = 42 – 60%. For the grain size test shows the value of the grain fraction > 2 mm = 2 – 18%, the coarse sand fraction = 67 – 80%, the fine sand fraction = 9 – 16%, and the silt fraction = 3 – 4%. The Atterberg limit results show the value of the liquid limit (LL) = 48 – 64%, the plastic limit (PL) = 39 – 46%, the plasticity index (PI) = 6 – 19%, the liquid index (LI) = 0.21 – 2.52%, and the activity (A) = 1.346 – 5.450. Direct shear strength test show the value of the inner shear angle () = 9.62 – 44.95 and the cohesion value (c) = 0.0443 – 5.6750 kN/m2 . Then obtained engineering geology units including Lightly Weathered – Strong Andesite Rock Units, Perfectly Weathered Tuff Units, Good Gradation Sand Units (SW), and Strong – Perfectly Weathered Collovium Units. The construction of wellpad geothermal can take can take into account the design of the wellbore, road access, high and steep relief, and the results of laboratory tests.