

Karakteristik geologi teknik lapangan EDT B, Desa Hariang, Kabupaten Lebak, Provinsi Banten = Technical geological characteristics EDT B field, Hariang Village, Lebak Regency, Banten Province

Akhmad Rafif Thufail, athor

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Abstrak

Gunung Endut memiliki potensi cadangan terduga sebagai pembangkit listrik tenaga panas bumi sebesar 80 MWe. Informasi geologi teknik seperti mekanika tanah, litologi batuan, tingkat pelapukan batuan, kekuatan batuan, serta kemiringan lereng menjadi hal yang fundamental dalam menentukan lokasi wellpad. Hal tersebut mendasari penelitian karakteristik geologi teknik perlu dilakukan untuk kepentingan penentuan titik wellpad. Metode penelitian berupa pemetaan geologi teknik dan uji laboratorium mekanika tanah. Dalam melakukan uji mekanika tanah, digunakan sampel tanah terganggu yang diambil menggunakan sekop. Hasil pemetaan geologi teknik menunjukkan daerah penelitian tersusun atas lima satuan geologi teknik, yaitu satuan tanah residual SP (RSP), tanah residual SW (RSW), andesit lapuk sedang (AM), andesit sangat lapuk (AH), dan tuf lapuk sempurna. Berdasarkan tingkat pelapukan, daerah penelitian terbagi menjadi tiga zona pelapukan, yaitu zona batuan lapuk tinggi (level 4), zona batuan lapuk sempurna (level 5), dan zona tanah residu (level 6). Hasil analisis mekanika tanah menunjukkan nilai kadar air 29,62%- 40,89%, nilai batas cair (LL) 28,56%-48,17%, indeks plastisitas (PI) 1,49%- 17,96% dominan agak plastis, indeks aktivitas 0,3-1,55 (inactive hingga active clays) dominan normal clays, potensi swelling sedang, kohesi (c) 0,814-7,364 kPa, serta sudut geser dalam (\tilde{N}) $2,51^{\circ}$ - $20,9^{\circ}$. Analisis kelayakan menunjukkan daerah penelitian layak dibangun wellpad dengan kriteria pondasi dengan kedalaman 3 m, berat tanah 1,8 t/m³, lebar pondasi 5 m, serta faktor keamanan 2,5 dapat menopang wellpad dengan daya dukung rata-rata 12,16 ton/m².

.....Mount Endut has a potential reserve of 80 MWe as a geothermal power plant. Technical geological information such as soil mechanics, lithology, weathering level, rock strength, and slope are fundamental in determining the location of wellpad. This underlies the research on engineering geological characteristics that need to be carried out to determine the wellpad point. The research method is in the form of engineering geological mapping and soil mechanics laboratory tests. In carrying out soil mechanics tests, disturbed soil samples were used which were taken using a shovel. The result of the engineering geological mapping show that the research area is composed of five engineering geological units, namely residual soil unit SP (RSP), residual soil SW (RSW), moderately weathered andesite (AM), highly weathered andesite (AH), and completely weathered tuff. Based on the level of weathering, the study area is divided into three weathering zones, namely the highly weathered rock zone (level 4), the completely weathered rock zone (level 5), and the residual soil zone (level 6). The results of the soil mechanics analysis show that the water content value is 29.62%-40.89%, the liquid limit value (LL) is 28.56%-48.17%, and the plasticity index (PI) 1.49%-17.96% is slightly dominant. plastic, activation index 0.3-1.55 (inactive to active clays) dominant normal clays, moderate swelling potential, cohesion (c) 0.814-7.364 kPa, and internal shear angle (\tilde{N}) 2.51° - 20.9° . The feasibility analysis shows that the research area is feasible to build a wellpad with the criteria of a foundation with a depth of 3 m, soil weight of 1,8 t/m³, a foundation width of 5 m, and a safety factor of 2.5 that can support a wellpad with an average carrying capacity of 12,16 tons/ m².