ABSTRACT

IDENTIFICATION OF LAKE SEDIMENTS AND BEDROCK SAGULING PADALARANG, BANDUNG DISTRICT WEST USING GROUND PENETRATRATING RADAR

By

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GPR data acquisition be done on lan or in the territorial waters, GPR data acquisition is very effective to map the water depth, the thickness of the sediment layers and bedrock. Research has been done on the Lake Saguling Padalarang, Bandung district using Ground Penetrating Radar (GPR) to determine water depth, thickness of sediment and bedrock. The results of data processing in each line with path length of 100 meters and ± 35 meters spacing, based on the data and then do the interpretation process based on the data GPR 2D layer model. 2D model is based on the dieletric contrast and velocity of electromagnetic waves in the medium. Dielctric constant in rock layers would cause the wave propagation velocity difference and the amplitude difference and signal reflections. It can be identifed layers traversed by the electromagnetic waves. So we get the water depth reached 0-11 meters, the thicnkness sediments 2-18 meters and the thickness of the bedrock 3-32 meters on the lake measured Saguling. More sediment thickness tends to the be thick in the south, than in the north and berdrock tend to be thicker at the north than the south.

Keywords : Ground Penetrating Radar, 2D model, Lake Saguling Padalarang.

ABSTRAK

IDENTIFIKASI LAPISAN ALUVIAL DAN LEMPUNG DI DANAU SAGULING, KABUPATEN BANDUNG BARAT MENGGUNAKAN METODE *GROUND PENETRATING RADAR (GPR)*

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Penelitian di Danau Saguling ini bertujuan untuk mengidentifikasi ketebalan lapisan aluvial dan lempung menggunakan metode *GPR* (*Ground Penetrating Radar*). Pengukuran data lapangan menggunakan *GPR ProEx Malla* 25 MHz pada 4 lintasan pengukuran dengan panjang masing-masing lintasan 100 m dan spasi antar lintasan pengukuran 50 m. Prosesing data dilakukan dengan tahapan *Import data, Static/muting, Dewow, Background Removal, Manual Gain, Banpass filter (Butterworth), Stack Trace, FK-Migrasi.* Berdasarkan hasil pemprosesan data dengan tahapan di atas diperoleh pemodelan 2D pada tiap lintasan pengukuran. Model 2D ini didasarkan atas adanya kontras dielektrik dan kecepatan gelombang elektromagnetik pada medium. Kontras konstanta dielektrik pada lapisan menyebabkan perbedaan kecepatan perambatan gelombang dan perbedaan amplitudo pada sinyal refleksi, sehingga didapatkan kedalaman air mencapai 0-11 m, ketebalan aluvial 2-18 m dan ketebalan lempung mencapai 3-32 m. Ketebalan aluvial lebih cenderung tebal pada bagian Selatan dibandingkan bagian Utara dan sebaliknya lempung cenderung tebal pada bagian Utara dibandingkan bagian Selatan.

Kata Kunci : *Ground Penetrating Radar*, Model 2D, Danau Saguling.