



Use Of Vertical Electrical Sounding Survey For Study Groundwater In NISSAH Region, SAUDI ARABIA

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The aim of this research is to investigate groundwater depth in desert and dry environmental conditions area .

The study site located in Wadi Nisah-eastern part of Najd province (east-central of Saudi Arabia), Generally, the study site is underlain by Phanerozoic sedimentary rocks of the western edge of the Arabian platform, which rests on Proterozoic basement at depths ranged between 5-8km. Another key objective of this research is to assess the water-table and identify the bearing layers structures study area by using Vertical Electrical Sounding (VES) 1D imaging technique.

We have been implemented and acquired a sections of 315 meter vertical electrical soundings using Schlumberger field arrangements . These dataset were conducted along 9 profiles. The resistivity Schlumberger sounding was carried with half-spacing in the range 500 . The VES survey intend to cover several locations where existing wells information may be used for correlations. also location along the valley using the device Syscal R2

The results of this study concluded that there are at least three sedimentary layers to a depth of 130 meter. First layer, extending from the surface to a depth of about 3 meter characterized by dry sandy layer and high resistivity value. The second layer, underlain the first layer to a depth of 70 meter. This layer has less resistant compare to the first layer. Last layer, has low resistivity values of 20 ohm .m to a depth of 130 meter blow ground surface.

We have observed a complex pattern of groundwater depth (ranging from 80 meter to 120 meter) which may reflect the lateral heterogeneity of study site. The outcomes of this research has been used to locate the suitable drilling locations.