

Goelectric Survey for Groundwater Potential in Waziri Umaru Federal Polytechnic, Birnin Kebbi, Nigeria

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Abstract : Geoelectrical measurements using Schlumberger Vertical Electrical Sounding (VES) method were carried out in Waziri Umaru Federal Polytechnic, Birnin Kebbi, Nigeria, with the aim of determining the groundwater potential in the area. Twelve (12) Vertical Electric Sounding (VES) data were collected using Terrameter (ABEM SAS 300c) and analyzed using computer software (IPI2win), which gives an automatic interpretation of the apparent resistivity. The results of the interpretation of VES data were used in the characterization of three to five geo-electric layers from which the aquifer units were delineated. Data analysis indicated that water bearing formation exists in the third and fourth layers having resistivity range of 312 to 767 Ω m and 9.51 to 681 Ω m, respectively. The thickness of the formation ranges from 14.7 to 41.8 m, while the depth is from 8.22 to 53.7 m. Based on the result obtained from the interpretation of the data, five (5) VES stations were recommended as the most viable locations for groundwater exploration in the study area. The VES stations include VES A4, A5, A6, B1, and B2. The VES results of the entire area indicated that the water bearing formation occurs at maximum depth of 53.7 m at the time of this survey.

Keywords : aquifer, depth, groundwater, resistivity, Schlumberger

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