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Geophysical investigation of groundwater level using vertical electrical sounding - A case study of EwuIn Edo State, Nigeria

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In this research work, four Vertical Electrical Soundings (VES) were carried out in Ewu Town at various locations: Eguare-Ewu, Idunwele-Ewu, Flour Mill Road-Ewu and Eko-Ewu using the ABEM terrameter, by employing the Schlumberger electrode configuration system to determine the level of groundwater. From the analysis of field data and results of computer iteration, a maximum of four geoelectric layers were obtained. The first layer of geoelectric section was the lateritic top soil with thickness of 1.21 m and 11.1, for VES 1 and VES 2, with apparent resistivity of 438 Ωm and 183 Ωm . The possible aquiferous zone for sustaining groundwater are within the second and third layers for VES 1 and the fourth layer for VES 2, at a depth of 2.67 m – 47 m and infinity respectively. The apparent resistivity of the aquiferous layer of VES 1 and VES 2 are 797 Ωm and 362 Ωm respectively, which is a fine sand layer. The apparent resistivity of the aquiferous layer of VES 3 and VES 4 are 5511 Ωm and 129 Ωm respectively with infinity thickness.

Biography

Atumah O Lawrence has completed his MSc in Physics (Exploration Geophysics) from University of Benin, Benin City, Edo State, Nigeria in 2003. He is a Principal Lecturer in the Department of Science Laboratory Technology, School of Applied Sciences and Technology. He has publications in reputable journals and served as Head of Department of Science Laboratory Technology and is currently the Director of Student Industrial Work Experience Scheme (SIWES).

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