Geo-electrical Resistivity Characterization of Sedimentary Rocks in Dent Peninsular, Lahad Datu, Sabah

ABSTRACT

A vertical electrical sounding (VES) survey was conducted in Dent Peninsular, Lahad Datu Sabah. The main objectives of the study are to determine the geo-electrical characteristic curves of the sediments and to relate them to various rock formations and layer of aquifer potential. In this study, the schlumberger electrode configuration was adopted for the acquisition of VES data in the field. A total of 31 VES stations were occupied within Sebahat, Ganduman and Togopi Formation of the study area. Resistivity curve types identified ranges from simple H until HQ, QH, KA, AA and QQ curve types, reflecting facies or lithological variations in the area. Four typical geo-electrical resistivity curves obtained can be associated with different rock formations in the study area. Four pattern of resistivity curves were obtained for Sebahat Formation with no typical characteristic type of curves which include HQ, QQ, QH and H types. Two typical resistivity curves were observed for the Lower Ganduman Formation (HQ and QQ) and three typical curves characterized the Upper Ganduman Formation (H, HQ and KA). Similarly, three typical resistivity curves (HQ, AA and H) were obtained for Togopi Formation. Interpreted 2D geo-electrical resistivity section obtained for all the sedimentary rock formations were used to evaluate the potential aquifer in the study area. The results show that the thick sandstone layers found in the Lower Ganduman and Togopi Formation have potential to become good groundwater aquifers. In addition, there is also a possibility of variable thickness of sandstone layer in the Upper Ganduman Formation to become a possible unconfined aquifer.