

THE USE OF THE RESISTIVITY METHOD FOR GROUNDWATER INVESTIGATIONS IN SEMIARID REGION (A CASE HISTORY)

Abdullah M.S. Al-Amri
Dept. of Geology , King Saud University
Riyadh , Saudi Arabia

ABSTRACT

The hydrogeophysical investigations play a very important role in the assessment of groundwater in Wadi Ranyah since there is a considerable lack of hydrogeological and hydrological information. Significant and detectable contrasts in resistivity values of the lithological units enabled the application of electrical resistivity method. The survey consisted of 10 vertical electrical soundings (VES) and 10 horizontal electrical profiling (HEP) using Schlumberger and Wenner arrangements , respectively .

The analysis of VES curves and HEP contour map in conjunction with the results of groundwater parameters indicates that the groundwater aquifers occupy the saturated part of the alluvium and the weathered part of the basement rock. The groundwater potentiality occurs mainly in the downstream of Wadi Ranyah because of it is low clay content and highly fractured rocks underlying the Wadi alluvium. The VES in the order of preference for the sequence of drilling which demonstrate relatively better groundwater potential are VES 7 , 8 , 9 , 3 and 6 respectively .