

GEOPHYSICAL INVESTIGATION FOR GROUNDWATER EXPLORATION IN JUKKAL-BICHUKUNDA AREAS, NIZAMABAD DISTRICT, TS, INDIA – A CASE STUDY

Allam Edukondal, M. Ramu, G. Hari Krishna and M. Muralidhar

Department of Geology, Osmania University

Email: Kondalgeo@gmail.com

Abstract

Groundwater exploration is the investigation of underground formations to understand the hydrologic cycle, know the groundwater quality, and identify the nature, number and types of aquifers. There are different groundwater exploration methods, among which Surface geophysical methods is one of the investigation methods. Vertical electrical sounding is one of the surface geophysical methods. Vertical Electrical Sounding (VES) provides valuable information regarding the vertical successions of subsurface geological-materials in terms of their individual thicknesses and corresponding resistivity values. It is rapid and effective in estimating aquifer thickness in an area and is a cost effective technique for groundwater study. The objective of this study is to locate fifty well site locations using surface geophysical methods for water supply. However, hydrogeological and geological investigations need to be also incorporated in addition to the geophysical surveying activities (Dobrin, 1976). Finally, the intended well site locations with their corresponding thickness and resistivity values were identified using an integrated approach. In the present study, Schlumberger Array Technique using DDR-I model was deployed to search for groundwater using high signal strength data in a tectonically disturbed hard rock ridge region for groundwater.

Keywords: VES, Groundwater, Jukkal-Bichukunda.