ABSTRACT

DETERMINATION OF SHALLOW GROUNDWATER AQUIFER WITH GEOELECTRICAL METHOD SCHLUMBERGER CONFIGURATION AND WATER BALANCE AT FIELD "X" IN LUBUK KAMBING, JAMBI PROVINCE

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This research was used to determine the distribution of shallow groundwater aquifer and groundwater potential zones in the Lubuk Kambing area, Jambi, with coordinates 89°49'51.5 "North Latitude and 280°51'9.7" West Longitude. This study aims to overcome the problem of lack of water to irrigate resident farm . This is secondary data with 16 points. The research using Schlumberger configuration with a measurement length of 80 meters. This research has an area of 300 x 100 m.

This Secondary data processed using IP2WIN (Inducted Polarization Two Windows) Software. The IP2Win software is used to get a matching curve that shows the lithology layer of the research area and the presence and depth of the target, namely groundwater. The results obtained are graphic of 1D inversion and also resistivity vs. depth value. After that, the aquifer location was determined by subsurface modeling using Coreldraw software, then make maps of thickness, depth and potential zones of aquifers using Surfer software. Map of potential aquifer zones is based on the thickness values of each aquifer point. Water balance data used to suport geoelectrical data to make interpretation easily.

The results is the lithology are sandy limestones with the resistivity values between 20 - 50 μm. The maximum aquifer thickness in the study area is 15 m and the minimum thickness is 5.5 m while the maximum depth of aquifer is 31.9 m and the minimum aquifer is 8.17 m. based on the water balance chart in 2007-2016, this location has highest surplus in 2010 is 4,999 mm and has highest deficiT in 2007 is -36,262 mm.

Keyword : *Geoelectrical, Aquifer, Groundwater, Schlumberger, Water Balance.*