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ABSTRACT

Proper groundwater development in any area requires efficient management tools for well fields or individual wells. The selected areas in El Tamneen area in Darb El Arbeen and East El Owinat in the southern part of the Western Desert have a great importance for agricultural development in the last few years. Activity for groundwater development was started in these areas since the early 1960's. At the present time, these areas suffer a variety of problems where groundwater levels declined, the wells productivity are dropped and some well failure. The groundwater potentiality is changing between high to medium in the areas. The main problems in the selected areas are recorded with groundwater quality and quantity deterioration and shortage of well life span (from 5 to 10 years in many cases). The present study deals with specific area in which several water wells were drilled within the time between 1999 and 2012, most of these wells are not will designed and don't comply with the specifications set by the Companies which dealt with the drilling processes. However, other nearby drilled wells exists still now in good condition and don't suffer from these problems. Such problems were detected by the present author during his visits to the study areas. The present investigation show that local steel casing of low resistance to corrosion or six bar resistance UPVC with short screen length, large ring slot openings and using gravel pack of large size from calcareous materials or without any gravel pack are the main reasons of well failure. The current field investigations proved that groundwater quality and quantity deterioration are mainly attributed to poor well design, over pumping and return flow after irrigation.