ARTICLE INFO

Article history:
Received 29 October 2015
Accepted 09 January 2016

Keywords:
Hydrogeology;
Geomorphology;
Biba El-Fashn area;
Middle Eocene aquifer;
Eastern Desert fringes;
Egypt.

ABSTRACT

Development of the Nile Desert fringes and establishing of new communities and settlements are among the future national plans of Egypt. East Biba – El Fashn area represents one of the interesting areas for the future land reclamation. Geomorphologically, the study area is classified into; recent Nile alluvial plain, limestone plateau, structural ridges and drainage network. Middle Eocene (Mokattam group) is the oldest exposed rock units. It is classified into; Qarara, observatory and Beni Suef formations. The groundwater is available in the lower part of El Fashn F. (limestone with chert and Nummulites) and the upper part of Qarara F. (limestone, siltstone and marl). The groundwater is recorded at depths ranged from 6 m to 82.2 m and their salinities are ranged from 5932 mg/l to 256 mg/l. Groundwater is recharged from Nile water of the irrigation canals in the western part of the study area and from the occasional shores rain in the eastern one. Transmissivity values range from 782.5 m^2/day (in the western part of the study area) to 0.55 m^2/day (in the eastern part). Aquifer potentialities range from high to very low potentiality. The variation in transmissivity and potentiality are attributed mainly to the fractures density. Nile water and 25 groundwater samples were collected, chemically analyzed and evaluated. The major elements are determined and their geneses are suggested.