بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــسـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

IMPACT OF GEOMORPHOLOGICAL AND GEOLOGICAL SETTING ON GROUNDWATER IN QENA - SAFAGA DISTRICT - CENTRAL EASTERN DESERT - EGYPT.

A THESIS
Submitted for the Ph. D. Degree
In Geology
(Hydrogeology)

By
Tarek Ali Omar Aggour
B. Sc., Geology (. 1982)
M. Sc. Degree in Hydrogeology (1990)

Geology Department
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This thesis for Ph. D. Degree has been approved by /

Prof. Dr.

Prof. Dr.

Prof. Dr.

Date of Examination : / / 199

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ABSTRACT

Impact of geomorphological and geological setting on groundwater in Qena-Safaga District - Central Eastern Desert - Egypt.

By
Tarek Ali Omar Aggour

The main target of the study is to define the hydrogeologic framework of Qena-Safaga District in order to delineate the impact of the geomorphologic and geologic setting on the groundwater. The area of study (12932.5 km^2) is located in the Central Eastern Desert between longitudes 32° 25' 20" and 34° 5' E and latitudes 26° 5' 30" and 27° N.

Geomorphologically, the studied area is discriminated into three main hydrogeomorphic units; the Coastal Plain, the Watershed Areas and the Water Collectors. The watershed areas involve the Red Sea mountainous terrain, the high plateaux, the low plateau and the hilly areas. The water collectors are represented by the morphotectonic depressions and the hydrographic basins. The hydrographic basins are grouped into two systems, the Red Sea and the Nile Valley. The Red Sea system is characterized by high gradient and small areas, while, the Nile Valley system is characterized by low gradient and huge areas. Accordingly, the Nile Valley system has the higher groundwater potentialities.

Geologically, the studied area is built lithologically of rock units belonging to the Precambrian, Cretaceous, Paleocene, Eocene, Oligocene, Miocene, Pliocene and the Quaternary times .

Structurally, the studied area comprises several elements including, folds, faults and unconformities. Four folds are recognized including ; two anticlines (Wadi Qena and Hamama) and two synclines (Abu Had and El Sarai). The axis of Wadi Qena anticline runs almostly in N-S direction and the axes of the other folds run in NNW-SSE direction. On the other hand, the studied area has been

affected by N-S, E-W, NE-SW and NW-SE fault systems. The study of the structural lineaments reflects the dominance of the NW-SE direction which represents the impact of the Red Sea Structure. The high recorded density of these lineaments is associated with the areas occupied by granitic rocks.

Hydrogeologically, the studied area is characterized by the existence of aquifer varieties under different hydrogeologic conditions. They are defined by; Quaternary Alluvium, Pliocene Sandstone, Lower Maestrichtian Carbonate, Campanian Marl, Turonian-Santonian Nubian Sandstone and Precambrian Basement Complex aquifers.

Hydrogeochemically, the hydrogeochemical characteristics of the groundwater of the investigated aquifers are discussed through the total salinity, the pH values, the ion dominance, the hypothetical salts and the hydrochemical coefficients. Two models are applied for the hydrochemical classifications, the semi-logarithmic graph and the trilinear diagram. The groundwaters is evaluated for different purposes.

The geomorphological and geological impacts upon groundwater are recognized through distinctive differences in groundwater characteristics. They comprise the following :-

1)- The impacts due to morphologic features, including the impacts of the watershed extension and altitude and the hydrographic basin characteristics. The high mountainous terrain and the Nile Valley hydrographic system are characterized by high groundwater potentialities due to the broad extension of the first and the low gradient and large area of the second.
2)- The impacts due to orographic-climatic conditions. The impacts of the elevation variation is exhibited in the Precambrian and Lower Maestrichtian aquifers.
3)- The impacts due to lithologic properties, including impacts of the physical and chemical properties of the rocks.
4)- The impacts due to structural features including ; fracturing, tilting and dykes. These features represent the most significant controlling factors upon the groundwater occurrences.