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بسم الله الرحمن الرحيم

مركز الشبكات وتكنولوجيا المعلومات

قسم التوثيق الإلكتروني



Salwa Ak1



جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
على هذه الأقراص المدمجة قد أعدت دون أية تغييرات



Salwa Akl



بعض الوثائق الأصلية تالفة
وبالرسالة صفحات لم ترد بالأصل



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**FALAJES OF AL-AIN AREA: GEOLOGICAL SETTING
AND HYDROGEOLOGICAL CHARACTERISTICS**

**A THESIS
SUBMITTED IN PARTIAL FULFILLMENT FOR
THE MASTER DEGREE OF SCIENCE
"GEOLOGY"**

BY

**GAMEEL AHMED ANTAR SHALATA
(B.Sc. Geology, June 1980)**

**DEPARTMENT OF GEOLOGY
FACULTY OF SCIENCE
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DECLARATION

I declare that the contents of the thesis have not been previously submitted for a degree at this or any other university.

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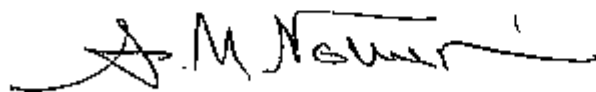
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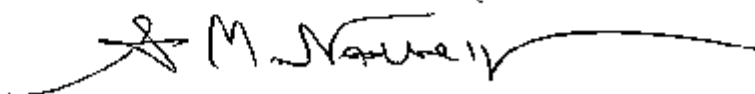
The present thesis is submitted to the Faculty of Science, Tanta University, in partial fulfillment of the requirements of the Degree of Master of Science in Geology.

Beside the research work presented in this thesis, the candidate has attended six post-graduate courses for one academic year in the following topics:

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ABSTRACT

In addition to their importance as a renewable water resource, falajes represent a part of the U. A. E. history. The Falaj is a man-made channel which intercepts ground water at the footslopes of high mountains and brings it to the surface for irrigation purposes.

The main objective of this thesis is to study the geological setting and their hydrogeological characters of the Al Ain falajes. The specific objectives are to: (1) study the climate of Al Ain area, especially rainfall, (2) investigate the geological setting of Falaj Al Aini and Falaj Al Daudi, (3) define the factors affecting discharge and water chemistry of Al Ain falajes and (4) determine the physical and chemical properties of water in the falajes and evaluate its suitability for different purposes.

To achieve these objectives, 73 water samples were collected from the Quaternary aquifer and Al Ain falajes in May 1995 and March 1996. Water samples were analyzed for major and minor chemical constituents in the Desert and Marine Research Center, U. A. E. University, and Al Sulaymat Laboratory of the Department of Agriculture, Al Ain.

Results indicate that the Al Ain falajes obtain their water mainly from the Quaternary alluvial aquifer. The sediments penetrated by the shafts of Falaj Al Aini and Falaj Al Daudi consists of, from base to top: crystalline limestone, calcareous mudstone, packstone, grainstone and ophiolitic conglomerate. The major rock-forming minerals identified by X-ray diffraction are calcite and dolomite. The minor minerals are lizardite, quartz, iron oxides and clay minerals. During the 1978-1995 period, the total falaj discharge in the U. A. E. varied between 9.0×10^6 m³/yr in 1994 and 31.2×10^6 m³/yr in 1982, which represented 2.8 to 9.7%, respectively, of the total water use in the country. The salinity and concentrations of Fe, Mn, Cu, Co, Ni, Zn, Pb and Cd in water of the Al Ain falajes are low and below the limits recommended by the World Health Organization (WHO) for drinking water. The dissolved salts in water of the falajes are Mg(HCO₃)₂ and Ca(HCO₃)₂ in the eastern part of the study area, and MgSO₄ and CaSO₄ in the west. The measured the electrical conductance (EC) and calculated sodium adsorption ratio (SAR) indicate that, except for the parts around and west of Jabal Hafit, the water of the Al Ain falajes are excellent for irrigation purposes.

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