



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم



MONA MAGHRABY



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التوثيق الإلكتروني والميكروفيلم



شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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**Geological and Petrophysical Studies of the Bahariya
Formation, Heba -100 Oil Field, Western Desert,
Egypt.**

**A Thesis submitted in Partial Fulfillment of the Requirements for the
Master Degree of Science in Geology**

By

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(B. Sc. In Geology, 2013)

To

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Cairo, 2021

Approval Sheet

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Note

The present thesis is submitted to the Faculty of Science, Ain Shams University in partial fulfillment for the requirements of the Master degree of Science in Geology.

Beside the research work materialized in this thesis, the candidate has attended ten post-graduate courses in the following topics:

1. Petroleum Geology
2. Subsurface Geology
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4. Reservoir rock in Gulf of Suez
5. Petroleum in Egypt and Arabic world
6. Petroleum Geochemistry
7. Advanced Hydrogeology
8. Statistical Geology
9. Hydro-geochemistry
10. Petrophysics of reservoir rocks

She successfully passed the final examinations in these courses.

In fulfillment of the language requirement for the degree, she also passed the final examination of a course in the English language.

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ABSTRACT

This work deals with investigation of subsurface and reservoir characteristics to evaluate hydrocarbon potentialities of Cenomanian Bahariya Formation in the Western Desert, characterizing the Upper Member of Bahariya Formation. It is the main reservoir for hydrocarbons in the study area, which is located at the north Western Desert, east Abu Gharadig basin. In the present study, a correlation is constructed between the four wells of Heba-100 Oilfield to represent the lateral facies change and thickness variation.

Upper Member of Bahariya Formation is divided into seven zones, there is no big difference in thickness between the wells all over the study area. Several thickness maps are constructed for Upper Member of Bahariya Formation such as sandstone, shale, siltstone and limestone. The drilled wells in Heba-100 Oil Field penetrating Upper Member of Bahariya Formation were examined through the description of ditch cutting samples to provide the lithological and environmental interpretation. The Upper Member of Bahariya formation seems to be deposited in shallow marine environment. The used core data results in the present study were obtained from three cores drilled in the pay zone of the Upper member of Bahariya Formation which extends from 6099 ft to 6129 ft. Core analyses are used to estimate various reservoir parameters derived from water injection. So, it appears that displacement pressure is affected by permeability and irreducible water saturation, and recovery efficiency. It is also affected by displacement pressure and permeability. In the studied four wells were: the estimated volume of shale ranges from (9% to 11%), average effective porosity ranges from (16 to 17%), average water saturation ranges from (51% to 99.9%) and the average hydrocarbon saturation ranges from (0.1%

to 42%) indicate that the Upper Member of Bahariya Formation reflects a good reservoir quality.

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