Accepted Manuscript

Sequence stratigraphy of the Raha Formation, Bakr Oil Field, Gulf of Suez, Egypt: Insights from electrical well log and palynological data

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PII: S1464-343X(17)30482-X

DOI: 10.1016/j.jafrearsci.2017.12.009

Reference: AES 3090

To appear in: Journal of African Earth Sciences

Received Date: 26 May 2017

Revised Date: 23 November 2017 Accepted Date: 12 December 2017

Please cite this article as: Mansour, A., Mohamed, O., Tahoun, S.S., Elewa, A.M.T., Sequence stratigraphy of the Raha Formation, Bakr Oil Field, Gulf of Suez, Egypt: Insights from electrical well log and palynological data, *Journal of African Earth Sciences* (2018), doi: 10.1016/j.jafrearsci.2017.12.009.

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ACCEPTED MANUSCRIPT

Sequence stratigraphy of the Raha Formation, Bakr Oil Field, Gulf of Suez, Egypt: Insights from	1
electrical well log and palynological data	2
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Abstract	12
The current paper provides a high resolution sequence stratigraphic study of the Raha Formation from the	13
productive Bakr Oil Field, central Gulf of Suez, Egypt. Sixty cutting rock samples spanning the Cenomanian	14
from three wells (Bakr-114, B-115 and B-109) in the Bakr Basin, were palynologically investigated. The	15
documented palynomorphs assemblage of either terrestrially-derived sporomorphs or marine inhabited dinocysts,	16
allowed two palynological zones as well as their encompassing depositional palaeoenvironment to be recognized.	17
These zones are Afropollis jardinus-Crybelosporites pannuceus Assemblage Zone (early-middle Cenomanian)	18
and Classopollis brasiliensis-Tricolpites sagax Assemblage Zone (late Cenomanian). Detailed analysis of the	19
particulate organic matter compositions suggested that the depositional palaeoenvironment of the Raha Formation	20
was fluctuating between supratidal and distal-inner neritic conditions, due to successive oscillations of the Neo-	21
Tethyan Ocean during the Cenomanian.	22
The pronounced peaks of particulate organic matter versus gamma ray are markedly used in delineating the	23
depositional sequences of the Raha Formation and their bounding surfaces. The Raha Formation probably	24
corresponds to a second-order depositional sequence, which can be further subdivided into eight third-order	25
depositional sequences, of which six are complete and two are incomplete ones. These depositional sequences are	26
significantly synchronized based on a simple 2-D correlation model between the three wells. According to the	27
hierarchical duration system, the Cenomanian herein was approximately attributed to 6 Myr, each of which has	28
lower order depositional sequences that took approximately 0.9 Myr. Based on the sequence stratigraphic	29
approach together with palynofacies analysis and gamma ray data, a condensed section was defined in the B-115.	30

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Key words

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