Seismic Interpretation of Abu Roash "G" Member, in Abu Gharadig Oil and Gas Field, North Western Desert, Egypt

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Abstract:

Abu Gharadig (AG) oil and gas field lies in the central portion of the AG basin in the northern part of the Western Desert. The Abu Roash (AR\textsuperscript{G}) represents the basal member of the Abu Roash Formation and comprises shale and limestone with interbeds of sandstone. This member may act as a source, reservoir or seal rock. Structural patterns of the AR\textsuperscript{G} Member play an important role in the hydrocarbon potentialities and prospect identification in the area. The data available for the present study include four digital wireline logs, 2D seismic sections, well path data, formation tops and a checkshot survey. The goal of the present study was achieved through the interpretation of the 2D seismic sections using petrel schlumberger modeling software. Two-way time (TWT) and depth structure maps were obtained, in addition to the geo-seismic cross-sections. From the present study, it is concluded that the AR\textsuperscript{G} Member suffered compartmentalization by a complex series of normal faults along with anticlinal folding. The anticline has NE-SW axis resulting from NW-SE compression. The fault planes have trends range from EW to NW-SE direction. The fold and the NW-SE faults are of Late Cretaceous age and are related to the time of the positive structural inversion through the AG basin. The fold is asymmetric and doubly plunging. The fold changes its asymmetry and plunging from SW to NE. The normal faults form horsts, grabens and half grabens.

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