Interpreted Strike-Slip Fault Elements in the 1st Eocene Reservoir of Wafra Field, PNZ Kuwait

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The Wafra field lies in the northwest part of Kuwait/ Saudi Arabia partitioned Neutral Zone (PNZ) and the 1st Eocene is the shallowest reservoir in the field. The structure of Wafra consists of two parallel anticlines, trending northwest - southeast. It is proposed that these anticlines are cut by northeast - southwest elements (strike slip faults). Accordingly, structural compartmentalization has been created due to horizontal and vertical displacements, with some rotation in the horizontal plane especially in the southern area of the field. These elements are believed to play an important roll in the development of structures in PNZ.

This structural domain represents the direct response to two major elements: the extension of Red Sea to the west, and the compression of Zagros crush zone to the east.

Regionally, many observations have been detected suggesting the occurrence of these elements. These observations are: Landsat images of Kuwait and Saudi Arabia, sinuosity of the Kuwait coast line, and structural offset of oil fields in PNZ area i.e. Wafra, South Fawaris & Humma.

So far, micro-scanner image data has proved to be one of the best methods to provide evidence for the presence of these elements. Abrupt changes in bedding dip attitude, deviation azimuth, and facies plus the occurrence of intensive fractures are the main evidence for these elements (strike-slip faults). Structure and pressure maps have been integrated with image data to verify the regional distribution of these strike slip faults in Wafra area. Current seismic data has insufficient quality to provide support for these interpretations.
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