Architecture Controls on Reservoir Performance of Zubair Formation, Rumaila and West Qurna Oilfields in the Southern Iraq

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The main reservoir in Rumaila /West Qurna oilfields is the Zubair Formation of Hautervian and Barremian age. This silicilastic formation extends over the regions of central and southern Iraq. This study attempts to improve the understanding of the architectural elements and their control on fluid flow paths within the Zubair Formation. A significant source of uncertainty in the zubair formation is the control on hydrodynamic pressure distribution. The reasons for pressure variation in the Zubair are not well understood. This work aims to reduce this uncertainty by providing a more detailed knowledge of reservoir architecture, distribution of barriers and baffles, and reservoir compartmentalization.

To characterize the stratigraphic architecture of the Zubair formation,high resolution reservoir models that incorporate dynamic and static data were built. Facies modelling is accomplished by means of stochastic modelling techniques.The work is based on a large data set collected from the Rumaila oilfields. These data, comprising conventional logs of varying vintages, NMR logs, cores from six wells, and pressure data, were used for performing geological and petrophysical analyses.Flow simulation studies have also been applied to examine the impact of architecture on recovery.

Understanding of geology and reservoir performance can be greatly improved by using an efficient, quick and viable integrated analysis, interpretation, and modelling.