

## **Short Reach Horizontal Well in Burgan Upper - A Strategy for Accelerated Production in Low PI Sands with Poor Aquifer Support**

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### **ABSTRACT**

Burgan reservoir in Greater Burgan Field located in South East Kuwait is the largest clastic reservoir in the world. Greater Burgan is a mature field, where bulk of the production is from the fluvial Burgan Middle sands with permeability in the range of 2 to 10 darcy. While these sands are getting depleted, the production is gradually shifting to Burgan Upper reservoir. The Burgan Upper reservoir comprises of tidal deltaic sands to estuarine and shallow marine sands which are less permeable, discontinuous and with low productivity. Using Grid spacing meant for Burgan middle wells leaves undrained areas in Burgan Upper reservoir. Earlier experience with depleting such reservoirs showed that naturally flowing vertical wells delivered only about 300 to 400 BOPD, while FBHP dips quite below bubble point pressures and reduces the life of the well. FDSEK studied the problem for one such undrained pocket and weighed various completion options to enhance the deliverability. The factors considered in this case were Low sand thickness, poor aquifer support, permeability anisotropy in a tidal bar and limited size of sand body. With the limited drainage area for the undrained sand body of 8' thickness the best option was a short reach horizontal well, with ICD completion for uniform drainage from a heterogeneous section. Model comparisons for vertical and horizontal wells showed 2.5 to 3 times increase in productivity using this approach. ICD Design profile was found to be in conformity with the actual production profile after two years of production. To drain such pockets, horizontal completions are found to be more effective. This paper elucidates the method for choosing the completion option for low PI sands with poor aquifer support.