

Challenging Opportunities in a Mature Field

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ABSTRACT

Bahrain Field discovered in 1932 is a highly faulted asymmetrical anticline trending in North – South direction. The field is a multi-stacked reservoirs producing from sixteen oil zones and four gas zones. In this single field reservoirs with tarry fluid at the top to dry gas in the deep exist. The oil reservoirs are under different stages of depletion. There are reservoirs in a mature stage of depletion whereas some of them are yet to be delineated and exploited. For the evaluation of the reservoir parameters, mainly open-hole logs have been used in the past. As the field started operation in 1932, a variety of evolving logging techniques was used. This has left some of the old wells with very limited suite of open-hole logs which resulted in the 84 years old field still a target for exploration and the application of improved recovery techniques to produce the various types of difficult oil.

Over the period of last 25 years we have identified several possible opportunities in the Bahrain field. These opportunities could not be evaluated properly due to the unavailability of tools for evaluation and the advanced technology to effectively test them. As might be expected these range from relatively low- risk shallow pay heavy oil opportunities, thin limestone stringers embedded in anhydrite to high- reward/high- risk organic rich mudstones play that potentially covers a large area of the Bahrain anticline. This work describes some of these opportunities and the steps being taken to test and evaluate them.