B002

Reducing Exploration Risk of a Messinian Play, Nile Delta - A Case Study

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SUMMARY

This paper introduces a workflow and combination of techniques that proved to be a successful approach for de-risking the Messinian stratigraphic play.

The key was to add confidence to the interpretation of seismic AVO anomalies in the Messinian section, as well as to the predicted depositional environment and reservoir facies away from well control. Detailed Seismic Sequence Stratigraphy, guided by wire line log interpretation and analysis of core data from nearby wells, was the foundation in developing the geological model for the stratigraphic play.

As a result of this work, a seismic AVO anomaly at Messinian level, not associated with structural closure, was drilled and proved a success. The well penetrated the predicted sand facies with high gas saturation, and flowed gas at commercial rates in the well test. The new proven Messinian stratigraphic play de-risked many similar mapped prospects with significant

Abstract

Being successful in a new play requires creative thinking, collaboration, and integration of many disciplines across the geosciences. This, combined with a corporate willingness to test new ideas and drill on new concepts, led to the opening of a Messinian stratigraphic play in the Nile Delta basin of Egypt.

The structural Messinian sand play is a proven play in the Nile Delta, with numerous gas fields discovered. Drilling of well defined structures mapped on 3D seismic and associated with seismic amplitude anomalies accounted for most of these discoveries, and, over time, achieved impressive success rates. At the same time, many Messinian Seismic amplitude anomalies which are not associated with structural closures were seen in the seismic volume, but a stratigraphic play in the Messinian was considered too high risk to obtain approval to drill. This paper introduces a workflow and combination of techniques that proved to be a successful approach for de-risking the Messinian stratigraphic play.

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