

Growing Shuaiba Core Play with Stratigraphic Concept in Mature Basin

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Abstract

Objectives:

The objective of this study was to re-evaluate the oil potential of Cretaceous Shuaiba formation in North Oman. Shuaiba formation is one of major oil plays in North Oman and across the region. More than 4 billion barrels oil have been discovered over the past 60 years within Block-6. In the late 90's and early 2000's, the play was thought to be largely creamed and the remaining potential was thought to be trivial and mainly located in areas of low relief which would result in economically challenging discoveries with small volumes.

Procedures:

This pre-conceived view on the Shuaiba play changed with the advent of large 3D wide azimuth (WAZ) seismic data in the last decade linked with large WAZ acquisition campaign in North Oman. In addition, many wells targeting deeper formations penetrated low relief (<15m) Shuaiba structures with encouraging mud gas readings, which when logged found unexpected pay. This together with the advances in seismic processing/imaging and the building of a comprehensive depositional stratigraphic framework led to the proposal of a new stratigraphic play concept in 2020 and was tested with an aggressive exploration and appraisal campaign.

Results:

The new concept was proven through discoveries in 2021 delivering attractive recoverable oil volumes which yield high development net present values (NPV) at competitive unit technical costs (UTC). A phased development approach with early monetization of the exploration/appraisal wells is in place for both opportunities supporting company's production growth strategy.

Conclusions:

The key enabler for the success is multi-disciplinary integration of all data including seismic, wells and geological models. With the continued focus in the company on resilient and attractive projects, Shuaiba as shallow carbonate play will continue to play an important role in sustaining exploration and development activities. To support that and building on the success of this stratigraphic play concept, a Shuaiba play portfolio rejuvenation work was carried out in selected areas resulting in significant recoverable volume addition to the portfolio. These volumes will support the exploration drilling plans in the upcoming 2-3 years. The concept is also being investigated over other white space area's where seismic acquisition or processing is underway. These will further contribute to the future business plan for company and Sultanate of Oman.