
Aspects of Petroleum Geology of Block-34, Al-Jazir, Southeast Oman

Mohammed A. Al-Balushi, Exploration Department, Ministry of Oil and Gas, P.O. Box 551, Muscat, 113, Oman, mbalushi@mog.gov.om and **Omar S. Al-Ja'aidi**, Department of Earth Sciences, College of Science, Sultan Qaboos University, P.O. Box 36, Muscat, 123 AlKhod, Oman.

Al-Jazir is an exploration acreage block-34, located in the SE coast of Oman. Previous exploration attempts have resulted in a total of 13417.7 km of 2D seismic and the drilling of four wildcat wells.

The geographical position of Block-34 along the eastern Margin of the Arabian Plate and the diverse tectono-stratigraphic history of the surrounding region provides a more challenging exploration task in the block compared with the interior areas of Oman. This is because the erosion/non-deposition to sedimentation rate in the area was considerably high from the Cambrian to the Triassic. As a consequence there was a complete absence of vital source, reservoir and seal units from the area.

From seismic, structures observed in the northern part of the block are mainly extensional and evolved through different geological periods. The faults observed in the Precambrian units were probably formed due to Precambrian extension and were possibly related to the Najad Rift event. The influence of the Indian Plate separation from the Afro-Arabian Plate is probably marked by the faults associated with the base Cretaceous horizon. The Tertiary-aged faults are believed to have formed after the Late Cretaceous obduction. On the other hand, the structures in the southern part of the block are mainly contractional, and possibly evolved due to the left-lateral, strike-slip faulting induced by the rifting event in the Gulf of Aden.

Preliminary studies on the geochemistry of the source rocks have proven the presence of effective source rock facies in both the Dhahir area (Khufai Formation) and Hathnar area (Masirah Bay Formation) along with potential source rock facies in Shuram, Buah, Natih Formations and Aruma Group. However, major risks are associated with hydrocarbon generation and migration timing with respect to structural formation.
