RATANA FIELD - A CASE HISTORY

Sarfaraz U. Siddiqui, Noor Elahi, and Azhar J. Siddiqui
Orient Petroleum Inc. (OPI), Islamabad, Pakistan

The Ratana Condensate and Gas Field is located in the northwestern part of the Potwar Basin, about 100 km Southwest of Islamabad. Ratana is a large, salt cored, thrust bounded, east-west trending pop-up structure. It is a sub thrust play so there is total disharmony between surface and subsurface structure. Due to its size and proximity to the Meyal and Toot oil fields, with pro:ven multiple reservoirs, Amoco decided to drill the structure in 1979 with Mianwala-1 well. However, due to severe drilling problems in thick molasse section, the well could not reach the objective depth and was declared abandoned. The discovery of gas and condensate in fractured Paleocene carbonates was made by Orient Petroleum Inc. (OPI) in 1989 with its Ratana-1 well. Unfortunately the well had to be abandoned due to mechanical failure. Ratana-2&3 were drilled and completed as producers. Ratana-3 was subsequently reentered and drilled more than 1100 feet of horizontal section in the Patala Formation of Paleocene age, setting a world record for the deepest kick-off (TVD 16,392').

In order to remap the structure and determin.e the volume of fractured carbonate reservoir, an extensive 3D seismic survey was conducted in 1996. Based on the modified geological model, simulation studies are in progress. The field development plan depends on several questions, such as are faults sealing or not; are the sub-parallel eastwest trending fracture sets in communication; do the intraformational shales separate the reservoir units and what is the potential of the Eocene Carbonates and Jurassic Datta Sandstones which are proven reservoirs in the Potwar Basin.

Workover jobs are also planned in the near future for the efficient development of the largest field of the North Potwar, which has already produced more than one million barrels of condensate and 24 bcf gas from the two producing wells. The estimated possible reserves on the basis of wells drilled so far are 638 bcf gas and 18.7 million barrels of condensate. It is believed that after drilling of more wells and testing of the Eocene Carbonates and sandstone of the Datta Formation of Jurassic age, the reserves will increase manifold.