Paper 19

Integration of sequence stratigraphy and reservoir management to optimise oil development at Tabu

MOHD RAJI
Esso Production Malaysia Inc.
Kompleks Antarabangsa
Jalan Sultan Ismail
50250 Kuala Lumpur

The Tabu Field is a small oil field discovered in 1978. The structure is a simple east-west trending compressional anticline in the Palas-Guntong-Tabu trend. The field is segmented by two N-S trending normal fault systems into 3 fault blocks; east, central and west. The main reservoirs are the Miocene 1-25 and 1-35 sandstones which contribute as much as 75% of the Tabu-B conformable proved plus probable reserves. The east fault block at Tabu Field was first developed in 1983 from the Tabu-A platform. In 1986 a 3D seismic survey was acquired over the field which provided a good subsurface image of the reservoir sandstones.

The 1-25 sandstone reservoir package is composed of the 1-30 highstand and the 1-25 lowstand sequences. The I-30 highstand, interpreted to be deposited in a deltaic environment, is overlain by fluvial rocks of the 1-25 lowstand. Several meters above the I-25 reservoir lies a thin and minor I-23 lowstand sandstones. The interpreted sequence boundary at the base of the I-25 lowstand separates a sand-dominated package above from the mud-stone package below. Seismic attributes calibrated to physical properties from log data were used to generate a new pay sandstone map over the I-25 oil reservoir interval. Results indicated that the absolute amplitude has a high correlation coefficient with physical properties from well data and the map was used as predictive tool for the development wells.

Tabu-B development was begun in 1995 with less than 50% of the reserves in the proven category. The high development cost at Tabu B made it a marginal project to development in this low oil price environment. This paper describes how the use of a multi-disciplinary team approach turned this marginal development into a cost effective endeavour. The use of sequence stratigraphy and seismic attributes as well as innovative solutions in reservoir engineering and drilling technologies were the key ingredients in this successful development.