Application of Integrated Seismic-Reservoir Prediction in Predicting Hidden Gas Reservoirs in the Upper Palaeozoic, North Ordos Basin

Dong, Ning, Exploration and Production Research Institute, SINOPEC, Beijing, China

The clastic reservoirs in the upper Palaeozoic group of the north Ordos Basin are "hidden" reservoirs with low porosity, low permeability and characteristic of thin beds. Adequately prediction of the occurrence and distribution of the fluvial sandstone bodies, their petrophysical properties and hydrocarbon saturation has become a huge challenge in the exploration and development in the area. In recent years, integrated reservoir forecasting technologies based on 3-D seismic data have been applied to address the challenges in the area. A set of valid technologies has been developed during the course of exploration by application of reservoir petrophysical analysis, seismic attribute optimization, stochastic seismic inversion, seismic attenuation analysis, seismic spectrum analysis, forward seismic modeling, seismic facies analysis and AVO analysis.

The application of valid seismic reservoir prediction enabled us to improve the prediction precision on reservoir characteristics, boost the success rate, and have discovered a 1X109 m3 Daniudi gas field.