

Oil and Gas Exploration in the Tahe Oilfield, Tarim Basin, China

Zhai, Xiaoxian, The Northwest Oil Company, SINOPEC, Urumchi, Xinjiang, China

The Tahe Oilfield in the northern Tarim Basin, northwest China is situated on a secondary structure. The Tahe Oilfield is the first large Palaeozoic marine facies carbonate oilfield discovered in China. It is a composite type hydrocarbon reservoir with the Ordovician carbonate as the main pay. The Ordovician reservoir is a very peculiar type with carbonate caves and slits resulting from palaeo-karsting as main accumulation space. This paper reviews the exploration history of the Tahe Oilfield and summarizes the exploration outcomes including the regional tectonic setting and geological evolution, the depositional features, the reservoir characteristics and the hydrocarbon accumulation model for the Tahe Oilfield. In addition, the hydrocarbon potential and the direction of future exploration in the Tahe Oilfield are also discussed.

The conceptual model of hydrocarbon accumulation in palaeo-karsts plays in the Tarim Basin had led to the discovery of the Tahe Oilfield with the help of advanced exploration technologies and techniques. The successful experience of hydrocarbon exploration in Tahe Oilfield will provide new insight for future exploration in the Tarim Basin and in other Chinese basins where similar reservoir plays may be present.