

Oil and gas reservoir-forming analyses in northwestern slope area of Shawan sag, Junggar basin

ZHAO ZHONGYING^{1*}, LU SHAN¹ AND YANG TING²

¹PetroChina Research Institute of Petroleum Exploration & Development, Beijing 100083, China

(*correspondence: zhaozhongying@petrochina.com.cn)

²CNOOC Research Institute, Beijing 100028, China

The northwestern slope area of Shawan sag, located in the footwall of Hongche Fault of the northwestern margin of the Junggar basin, is adjacent to Permian hydrocarbon generation depression and has a great resource potential. With the development of oil and gas exploration, large-scale effective reservoirs have been found in the Triassic Baikouquan and Kelamayi Formations in this area. Based on the studies of structure, reservoir, oil and gas source correlation, and reservoir-forming conditions, the main controlling factors of oil and gas accumulation have been analyzed for selecting the favorable exploration areas.

Faults, effective reservoirs and paleostructures are the most important factors to control oil and gas accumulation in the northwestern slope area of the Shawan sag (Fig. 1). The types of oil and gas reservoirs are different between the southern and northern parts of this area. In the southern part, the types of traps are dominated by stratigraphic overlap and lithology and the distribution of oil and gas is controlled by the combined effects of positive structure, faults for hydrocarbon expulsion, and overlap sandstones which does not joint with the Hongche Fault. In the northern part, fault block and lithology are the principal types of traps and the distribution of oil and gas is controlled by the combined effects of positive structure, faults for hydrocarbon expulsion and migration, and sandstones cut by faults.

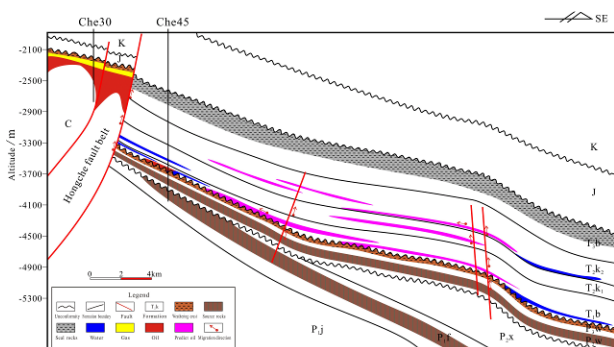


Fig. 1: Section map of the oil and gas accumulation in the northwestern slope area of the Shawan sag.