

Characteristics of Lujiazhuang Paleo-oil Reservoir in Mid-Upper Proterozoic of Northern Part of North China

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Lujiazhuang Paleo-Reservoir where the asphalt and oil seepage widely appear in outcrops is one of the most important reservoirs in Middle-Upper Proterozoic of northern part of North China. Nowadays, most of the reservoirs have been destructed. The data analysis and field geological investigation support the occurrence of favorable geological conditions for the formation of primary reservoirs in the Mid-Upper Proterozoic strata in this area. The research of Lujiazhuang Paleo-oil reservoir characteristics can offer geological basis for exploring primary reservoir.

Using a combining method of static description with experimental analysis, this paper analyzed the source rock condition, reservoir condition, caprock condition and source-reservoir-seal characteristics of Lujiazhuang Paleo-Reservoir. Moreover, it revealed the distribution features of the solid asphalt and oil seepage. The results show that Gaoyuzhuang Formation and Hongshuizhuang Formation are source rocks, Wumishan Formation, Tieling Formation and Xiamaling Formation are reservoirs, and Hongshuizhuang Formation and Xiamaling Formation are caprocks. There are more than one source-reservoir-seal. Moreover, solid asphalt and oil seepage are mainly distributed in Tieling Formation and Xiamaling Formation. The universality of solid asphalt distribution at the bottom of Xiamaling Formation shows that it experienced a large-scale oil and gas accumulation in the geologic history.