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Optimization of enrichment area in low permeability water bearing gas reservoir

Yan Haijun

Research Institute of Petroleum Exploration and Development, China

Low permeability gas reservoir is an important type of gas reservoir on a global scale. At present, a large number of low permeability water bearing gas reservoirs have been found in the world. In China, there are more than 2x104 m³ reserves distributed in this type reservoir. This kind of gas reservoir is mainly distributed in Sichuan and Ordos basin, China. This kind of gas reservoir is characterized by poor reservoir physical properties, strong heterogeneity, high water saturation, complex gas and water distribution and no obvious gas-water contact. So, the primary problem to develop this type reservoir is how to optimize the favorable area. Because of the complex formation water distribution, it is very hard to optimize the enrichment area to develop this kind of gas reservoir, it is an effective way to solve this problem that the reservoir is divided into different types. Gaoqiao gas reservoir is located in the Ordos basin and belongs to the low permeability water bearing gas reservoir. Take the Gaoqiao as an example, the classification criteria of storage permeability bodies are established and the type of drilled wells is classified. Based on the understanding of gas reservoir characteristics, the plane distribution of storage permeability body is drawn. Based on this distribution, we can optimize the development area in Gaoqiao. This method can be used to optimize the development area to develop such reserves. Furthermore, this method is helpful for the effective development of a large number of these gas reservoirs in China and the world.



Figure 1: The sketch map of SPB (Storage Permeability Body)

Biography

Yan Haijun has received his BS degree in Petroleum Engineering from the Northeast Petroleum University and his MS degree from Research Institute of Petroleum Exploration & Development (RIPED), Beijing, China. From 2006, he has worked in the areas of oil & gas geology and gas development. He is currently the Engineer of Department of Ordos E&P, RIPED, working mainly on gas development. As an Engineer, he has published over 10 papers and 1 book.

yhj010@petrochina.com.cn

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