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塔中16油藏东河砂岩段高精度层序地层划分与优质储层预测

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High Resolution Sequence Stratigraphy and Excellent Reservoir Distribution of the Donghe Sandstone Reservoir in Tazhong16 Reservoir

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摘要/Abstract

摘要 :

东河砂岩是塔里木盆地塔中构造带重要的含油和开发层系。为遏制油藏含水率上升速度,提高油藏开发效果,论文综合应用取心、测井、三维地震和生产动态资料,开展了塔中16东河砂岩油藏高精度层序地层格架、储层沉积微相、优质储层的分布规律以及砂体外部几何形态、内部结构等影响油田开发效果的精细油藏地质特征研究。通过不同级次层序界面的识别对比以及沉积模式的分析,重点开展了塔中16油藏东河砂岩主力开发层段含砾砂岩段精细的层序地层单元的研究,将含砾砂岩段划分为2个准层序组和5个准层序,建立了高精度等时层序地层格架。在层序格架内部,依据相标志的深入分析,确定塔中16油藏东河砂岩为开阔滨岸环境的前滨亚相,主要发育沿岸砂坝沉积微相,在此基础上,精细刻画了砂坝微相砂体的垂向叠置和侧向切割关系以及储层物性的空间变化规律,预测了优质储层的平面分布,为塔中16东河砂岩油藏下次开发调整方案的制定、油藏开发效果的提高提供了地质依据。

关键词: 塔里木盆地, 东河砂岩, 层序地层, 前滨砂坝, 储层预测

Abstract:

The Donghe sandstone is one of the most important oil-bearing and development formations of Tazhong structural belt,Tarim Basin.In order to reduce water ratio and improve development of Tazhong 16 reservoir,high-resolution sequence stratigraphy,reservoir microfacies,spatial distribution of high-quality reservoir and other reservoir geological characteristics including sandstone geometry and its internal architecture were studied with comprehensive application of core,well logging,3D seismic and production data.Through identification and correlation of sequence boundaries of different orders and analysis on depositional model,high-resolution sequence stratigraphic sketch of the pebbled sandstone interval,the main development of Donghe sandstone was reconstructed,that is,2 parasequence sets and 5 parasequences.According to the analysis of facies signs,the Donghe sandstone of Tazhong 16 reservoir was deposited in a foreshore of an open shore facies environment with sand bars as the most favorable development target.Finally,the vertical stack pattern and lateral junction relationship of the reservoir sandstones,as well as the spatial variation of physical properties were finely depicted,leading to the horizontal distribution of high-quality reservoir,which could provide geological basis for the establishment of secondary development plan and the improvement of the development effectiveness of the Donghe sandstone reservoir.

Key words: Tarim Basin, The Donghe sandstone reservoir, Sequence stratigraphy, Foreshore sand bar, Reservoir prediction

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