勘探地球物理进展 2009 32 (2): 143-146 ISSN: 1671-8585 CN: 32-1664/TE 当期目录 上一期 下一期

应用实例

三维地质建模在大庆T4油田水平井开发中的应用

张景义 [1,2] ,魏 嘉 [3], 朱文斌 [1],岳承琪 [3]

1.南京大学地球科学系，江苏南京 210093； 2．大庆油田有限责任公司勘探开发研究院，黑龙江大庆 163712；3.中国石油化工股份有限公司石油勘探开发研究院南京石油物探研究所，江苏南京210014

收稿日期 2008-11-4 修回日期 2008-12-11 网络版发布日期 2009-5-6 接受日期

摘要 水平井技术是目前世界上最先进的采油技术。水平井开发的技术关键之一是建立油气藏的精细三维地质模型，据此可以确定明确的地质目标，设计合理的钻井轨迹。在精细三维地质模型的建立过程中，首先以构造解释成果为基础建立地层格架，然后结合沉积微相、储层非均质性的研究成果和相控建模的思路，利用序贯指示模拟等随机建模方法进行油气藏的属性建模。在大庆T4油田应用三维地质建模技术，建立了T48L121井区的精细地质模型，精细刻画了5m厚度砂体的空间展布，并以此为依据，完成了水平井轨迹的设计，在高含水油区获得了较高的产能。

关键词 大庆T4油田；三维地质建模；相控；水平井

Application of 3 D geological modeling in horizontal well exploitation in Daqing T4 Oilfield

Zhang Jingyi, Wei Jia,Zhu Wenbin,Yue Chengqi

Zhang Jingyi,

Department of Earth Sciences,Nanjing University,Nanjing 210093,China

Abstract Horizontal well technology is one of the world s most advanced oil production technologies.One of the key techniques in development with horizontal well is to establish an accurate 3 D geological model of reservoir to delineate the target and design a reasonable drilling trajectory.In order to establish an accurate 3 D geological model,a stratigraphic framework has been built based on the results of structural interpretation.By combining with the analysis results of sedimentary microfacies and reservoir heterogeneity,a reservoir attribute model was built under the view of facies control using the method of stochastic modeling of sequential indication simulation.Through the application of 3 D geological modeling technology in Daqing T4 Oilfield,an accurate 3 D geological model was built in well field T48 L121 and the spatial distribution of a 5m thick sand body was finely drawn.Consequently,the horizontal well trajectory has been designed and a higher capacity has been obtained in high water cut oil region.

Key words Daqing T4 Oilfield; 3 D geological modeling; facies control; horizontal well

分类号 P631.4

DOI:

通讯作者:

作者个人主页: 张景义 [1;2] ; 魏 嘉 [3]; 朱文斌 [1];岳承琪 [3]