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论文

煤层气水平井连通井组轨道设计与控制方法

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摘要：

煤层气水平井组由一口或几口水平井与一口洞穴直井连通，共同利用该直井进行采气作业，因此煤层气水平井需进行两井连通作业。依据煤层气水平井组的特点，建立了以煤层气水平井为基准的坐标体系，并推出了两井坐标体系的转换公式；考虑到连通井段短和轨道控制要求高的特点，优选出增—增—稳设计剖面，并建立了分段轨道优化设计方法；以逐步缩小洞穴井与水平井相对位置的不确定性椭圆范围为目标，提出了煤层气水平井轨道测量的方法及稳斜扭方位的轨道控制模型。通过以上的基础研究，形成了较系统的水平井连通井组轨道设计与控制方法，并结合现场应用进行了连通轨道控制的分析。

关键词： 煤层气；水平井；连通井组；轨道设计；控制方法

Design and control methods of remote intersection wells for development of coal-bed methane

Abstract:

Coal-bed methane(CBM) well group consists of a horizontal well or a few horizontal wells with a vertical well.Horizontal wells connected together use the straight wells to operate in future.Based on the characteristics of CBM horizontal wells，coordinate system was established.And conversion formula of two wells coordinate system was launched；Taking into account the requirements of short trajectory and high precision for control，intersection of horizontal well was optimized，and a sub-orbital optimization method was established.To gradually educe the relative position of the range of uncertainty ellipse between the caves and horizontal wells，measurement method and the orbit control model were proposed.On basis of the above study，track design and control method of horizontal well groups were formatted.Finally track control about field application was analyzed.

Keywords: coal-bed methane；horizontal well；remote intersection well；track design；control method

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