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沁水盆地致密气成藏条件与勘探潜力研究

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Study on the Tight Gas Accumulation Conditions and Exploration Potential in the Qinshui Basin



摘要/Abstract

摘要:

沁水盆地常规天然气和致密气资源潜力目前仍存在较大争议。为探索沁水盆地致密气勘探潜力,对沁水盆地中南部已钻煤层气参数井重新进行了测井解释,发现了多个致密气可疑层,并重点从烃源岩条件和储集条件对该盆地致密气成藏条件进行了分析,探讨了该盆地致密气勘探潜力。研究表明,沁水盆地具有较好的致密气成藏条件,晚石炭世—早二叠世沁水盆地整体处于海陆过渡相环境,发育了多套煤系烃源岩,具有广布式分布、大面积生烃的特征上二叠统发育多套三角洲平原分流河道相和河流相砂岩储层,与分流间湾相和湖泊相泥岩形成较好的储盖组合。综合来看,沁水盆地具有较好的致密气烃源条件和储盖条件,可以形成下生上储型致密气藏,具有一定的勘探潜力,应引起重视。

关键词: 沁水盆地, 致密气, 成藏条件, 勘探潜力

Abstract:

Although the Qinshui Basin is a key area for CBM exploration and exploitation in China, there is a big controversy about the potential of conventional and tight gas. In order to explore the potential of tight gas in the Qinshui Basin, the log interpretations for CBM parameter wells in the south-central area of the Qinshui Basin were done again, and a number of suspected tight gas reservoirs were identified. Compared with Ordos Basin, the tight gas accumulation condition and accumulation model of the Qinshui Basin were analyzed, and the exploration potential were also investigated based on the hydrocarbon source and reservoir conditions analysis. The result indicated that there were good tight gas reservoir conditions in the Qinshui Basin. A series of coal-measure source rocks which are widely distributed in the whole basin were developed with transitional facies during the Late Carboniferous-Early Permian, and hydrocarbon generation happened almost everywhere. Good reservoir-seal assemblage consisting of delta plain distributary channel and fluvial sandstone and distributary interchannel and lacustrine mudstone were formed in Late Permian. In short, there are good hydrocarbon source conditions and reservoir-seal assemblage in the Qinshui Basin, and tight gas reservoirs could be formed by the gas generation in the lower formation and storage in the upper formation. More attention should be paid to the exploration of tight gas in the Qinshui Basin in future.

Key words: Qinshui Basin, Tight gas, Accumulation conditions, Exploration potential

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