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中国首个大型页岩气田典型特征

刘若冰 ▾

Typical Features of the First Giant Shale Gas Field in China

LIU Ruo-bing ▾



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摘要/Abstract

摘要 :

2012年11月28日JY1井龙马溪组页岩气层测试获得日产20.3×10⁴m³高产页岩气流,宣告了涪陵页岩气田的发现,并于2014年7月10日向国家储量委员会提交了国内第一块页岩气探明地质储量。勘探开发实践证明,涪陵页岩气田储层为海相深水陆棚相优质泥页岩,厚度大,分布稳定,中间无夹层。气田具有气井产量高、气藏压力高、天然气组分好、试采效果好的特点,属于中深层、高压、优质天然气藏。通过区域沉积背景、岩性、微观孔隙结构、物性、气源、气藏特征、测井响应特征及气井生产特点等方面的综合研究,表明:①涪陵页岩气田龙马溪组属于深水陆棚静海沉积环境,富有机质泥页岩发育;②龙马溪组泥页岩热演化程度适中,纳米级有机质孔隙发育;③天然气源于龙马溪组自身的烃源岩母质;④涪陵龙马溪组页岩气藏具有与北美典型页岩气藏类似的地质特征和开发生产规律。从而较全面证实了涪陵龙马溪组页岩气田是典型的原地滞留、自生自储页岩气。

关键词: 涪陵, 页岩气田, 沉积环境, 气藏特征, 孔隙结构, 测井响应特征

Abstract:

High shale gas flow of 20.3×10⁴m³ was tested in Longmaxi Formation in Nov.28,2012,which declared the discovery of Fuling shale gas field.On July 10,2014 the proved geological reserves of the first shale gas field in China was submitted to National Reserves Committee.The practices of exploration and development prove that the reservoirs in Fuling shale gas field belong to quality shales deposited in deep shelf,with great thickness,stable distribution,no interlayers.The shale gas field is characterized by high production well,high pressure reservoirs,good ingredients of gas and good effects on testing production,belonging to mid-deep quality natural gas reservoirs with high pressure.According to the comprehensive studies on regional sedimentary background,lithology,micro-pore structures,geophysical properties,gas sources,features of gas reservoirs,logging responding features and producing features of gas wells,it shows that(1)Longmaxi Formation in Fuling shale gas field belongs to deep shelf environment where organic-rich shales developed well;(2)Thermal evolution of shales of Longmaxi Formation is moderate and Nanometer-level pores develop;(3)The shale gas sources came from kerogens of Longmaxi Formation itself;(4)The shale gas reservoirs of Fuling Longmaxi Formation is similar to the typical ones in north America in geological features and producing rules.So all above proves that the shale gas produced from Longmaxi Formation in Fuling is the typical in-situ detained,self-generated and self-stored shale gas.

Key words: Fuling, Shale gas field, Sedimentary environment, Features of gas reservoirs, Pore structure, Logging responding features

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