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北部湾盆地凝析油气藏综合识别方法

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Comprehensive Identification Methods of Condensate Oil-gas Reservoir in the Beibu Gulf Basin

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摘要/Abstract

摘要：

北部湾盆地存在凝析气、挥发油、常规油以及大量过渡类型的流体，烃类组分复杂，测井响应特征相似，给凝析油气藏的识别和评价带来了很大的困难。以测试、取样和投产分析结果为依据，利用原油密度和气油比等参数对流体进行分类.在此基础上，分别利用四孔隙度差比值和纵横波速度比等方法对凝析油气进行识别，并指出由于海上油田种种因素的限制而难以广泛应用的现实问题.为此，分析北部湾盆地凝析油气藏的分布特征和运移模式，对具有不同原油性质的生油洼陷及其油气运移区域进行分类，利用气测组分比值和改进的三角形图版，来建立区域流体性质判别的定量解释标准，判别结果通过测压点回归、井下取样、测试或PVT流体分析可得到有效验证.实际应用表明，利用上述多种方法进行综合分析和相互印证，能够有效识别凝析油气层，目前该方法已在南海西部海域各区域推广应用。

关键词： 凝析油气藏, 气油比, 原油密度, 气测识别图版, 三角形图版, 取样流体分析, 生油洼陷

Abstract:

There were plenty of condensate gas,volatile oil,black oil and transition fluid in the Beibu Gulf Basin.Its hydrocarbon component was complicated,and it had similar logging response characteristics,so it was difficult to identify and evaluate condensate reservoir effectively.According to the result of testing,sampling and dynamic production,the fluid could be classified using oil density and gas-oil ratio.Based on this,many methods including four-porosity difference-ratio and ratio of P wave to S wave were adopted to identify the condensate gas-oil.These methods also face practical problems and is application is limited due to the restrictions of all sorts of factors in the offshore oilfield.Therefore,the classification was carried out firstly for different oil-source areas,and each area has different oil property and migration direction.The distribution characteristics and migration pattern of condensate gas-oil were analyzed,the ratio of gas logging components was applied and Triangle Chart was modified to build the quantitative interpretation standard for fluid properties.The results could be proved by pressure point regression,sampling,testing or PVT fluid analysis.The results show that using above-mentioned methods to make a comprehensive analysis and mutual corroboration can recognize condensate gas-oil effectively,and the methods have been applied in various regions in the western South China Sea.

Key words: Condensate petroleum accumulation, Gas-oil ratio, Oil density, Gas logging identification chart, Triangle chart, Sampling fluid analysis, Sag

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