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塔里木盆地塔中礁滩体大油气田成藏条件与成藏机制研究

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摘要:

中国海相碳酸盐岩油气勘探近年来进展很快,发现了一批大型油气田。塔中地区是塔里木盆地的重点勘探区和富油气区,奥陶系蕴藏了丰富的油气资源。奥陶系良里塔格组受塔中I号坡折带的控制发育陆棚边缘礁滩体,储层性质为低孔-特低孔、低渗灰岩储层,埋深在4500~6500 m。储层的形成和分布受早期高能沉积相带、溶蚀作用和断裂作用等因素的控制,有效储层的空间展布控制了油气的分布与大面积成藏。油源对比认为,塔中良里塔格组礁滩体油气藏的原油主要来自于中上奥陶统烃源岩,并混有寒武系烃源岩成因的原油;天然气主要来自于寒武系油裂解气,沿塔中I号坡折带断裂向内充注。成藏过程分析表明,塔中地区曾存在三期主要成藏期,第一期为加里东晚期成藏,油气来自于寒武系-下奥陶统烃源岩,但早海西期的构造运动,对该期油气破坏严重,造成大范围油藏破坏。第二期成藏期是晚海西期,也是塔中地区最重要的油气充成藏期,油气来自于中上奥陶统烃源岩。第三期成藏期是晚喜山期,受库车前陆冲断影响,台盆区快速沉降,埋深急速增大,寒武系原油裂解气形成,沿深部断裂向浅部奥陶系充注,对油藏进行气洗改造,从而形成大面积分布的凝析气藏。

英文摘要:

China has made great process in oil and gas exploration of marine carbonate reservoirs and discovered a lot of large oil and gas fields. The Tazhong area is the main exploration and petroleum-rich area of Tarim basin. Lianglitage Formation of Ordovician was controlled by Tazhong No.1 slope-break zone, and developed shelf margin reef-shoal reservoir with the character of low porosity to ultra-low porosity and low permeability, which the buried depth was between 4500 to 6500m. Reservoir formation and distribution was controlled by the factors of early high energy environment, dissolution and faulting, and the spatial distribution of effective reservoir controlled distribution of oil and gas and large-area accumulation. Through oil-source correlation, it's showed that the hydrocarbon of reef-shoal reservoir in Lianglitage Formation mainly originated from Upper Ordovician source rock and Cambrian source rock; in which natural gas mainly came from cracking gas of Cambrian oil, and infill injected inward along Tazhong No.1 slope-break zone fault. By the analysis of accumulation process, it's confined there were three main accumulation periods in Tazhong area, the first accumulation period was Late Caledonian, which the oil and gas was mainly from Cambrian-Lower Ordovician's source rock, but Early Hercynian tectonic movement broke the oil and gas accumulated in Caledonian period seriously. The second accumulation period was Late Hercynian, which was the most important accumulation period in Tazhong area, oil and gas was mainly originated from Middle and Upper Ordovician source rock. The third accumulation period was Late Himalayan, under the effect of Kuche foreland thrust, the platform subsided quickly, with the rapidly increasing of depth. During Late Himalayan period, the crude-oil-cracking gas which generated from Cambrian reservoir accumulated in shallow Ordovician along the deep fault, transformed the oil reservoirs into condensate gas reservoirs with in large-scale distribution.

关键词: [礁滩体](#) [凝析气藏](#) [深部储层](#) [奥陶系](#) [塔中I号断裂带](#) [塔里木盆地](#)

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