

Lithofacies Recognition of Deep Lacustrine Chang-7-Chang-8 Fine Grain Sandstone in Ordos Basin



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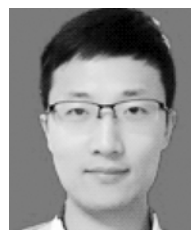
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Abstract: With the development of hydrocarbon exploration, the classification of sandstone from grain size can no longer meet the requirements of precise exploration and accurate description. Large-scale storm and seismic sands are discovered in deep lacustrine area in Ordos Basin from outcrop and core observation. This breaks through the opinion of undeveloped sand bodies in deep lacustrine area. According to sedimentary structural characteristics, we can divide fine grain sandstone in deep lacustrine into six lithofacies. The deep lacustrine fine grain sandstone can be further divided into tempestite fine grain sandstone, turbidite fine grain sandstone and oscillatory deposited fine grain sandstone lithofacies assemblages according to sedimentary structural characteristics together with formation mechanism. The lithofacies assemblages can be identified by vertical lithofacies combination, lithofacies sequence, sedimentary structural characteristics, planar location and tuff development characteristics. Tempestite fine grain sandstone consists of deformed laminated fine grain sandstone, parallel stratification fine grain sandstone, massive fine grain sandstone, hummocky cross stratified fine grain sandstone and wave stratification fine grain sandstone. The sedimentation in the study area is characterized by reverse grading which can be identified by the large amount of hummocky and swaley cross stratification. Turbidite fine grain sandstone consists of deformed laminated fine grain sandstone, parallel stratification fine grain

sandstone, massive fine grain sandstone and rippled bedded fine grain sandstone. Normal grading forms with the disappearance of storm because the storm cannot touch the sand below the storm wave base. As a result, there is no hummocky or swaley cross stratification. Oscillatory deposited fine grain sandstone is composed of massive fine grain sandstone, parallel stratification fine grain sandstone, deformed laminated fine grain sandstone and ripple bedded fine grain sandstone. It often exists together with tuff vertically and can be identified by strong deformed bedding and large number of micro faults.

Key words: deep lacustrine in Ordos Basin, lithofacies assemblage, tempestite fine grain sandstone, recognition

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