

EVIDENCE OF A SHELF BREAK DURING DEPOSITION OF THE MISSISSIPPIAN SPRINGER GROUP, ANADARKO BASIN, OKLAHOMA

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ABSTRACT

The Mississippian Springer interval in the southern parts of Caddo and Grady counties exhibits thickening patterns interpreted as reflecting the influence of a shelf edge and slope. The Springer interval, in ascending order includes the Goddard Shale, Boatwright sandstone, Britt sandstone and Cunningham sandstone. These are important oil and gas reservoirs in the eastern Anadarko basin with the Goddard being a major unconventional play and sandstones conventional. The Boatwright sandstone has been interpreted as a turbidite sequence, which is expected for slope deposits. Within the Springer interval radiogenic “hot shale” markers are interpreted as basin scale transgressive events. These are followed by “normal” shale and then sandstone interpreted as regressive deposition. By identifying key stratigraphic surfaces such as the radiogenic shales and mapping the associated sequences, the thickness trends and facies distribution patterns necessary to interpret the hypothesized shelf-slope break, if present, will be established. Evaluating the distribution of facies within these sequences will result in a better understanding of sediment dispersal within a sequence stratigraphic framework. This should improve the ability to predict conventional and unconventional reservoir distribution and as a result contribute to exploration success in the eastern Anadarko basin.

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