

Reservoir and Subsurface Stratigraphic Analysis of the Pennsylvanian Prue Sandstone, North Central Oklahoma

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This paper details the reservoir qualities of the Prue Sandstone in an 800 acre oil field in north-central Oklahoma on the Cherokee Platform. Specifically, the Longbranch Field in sections 2, 3, 10, 11, 14, and 15 of T18N R4E Payne County, Oklahoma. Analysis of the Prue in this field consisted of thin section, X-ray diffraction, core slab, and well logs evaluation for the purpose of understanding the depositional environment and reservoir qualities of the Prue Sandstone. Study results provide relevant information to be coupled with previous studies in the area to assess the type of reservoir quality (low, medium, or high) for proper treatment, stimulation, and completion of the sand in order to make it economically successful. This study found that the depositional environment of the Prue Sandstone was a fluvial-deltaic channel fill. The reservoir averaged 16-18% porosity with low permeability and a variety of diagenetic clays.