

Horizontal Drilling Of Deep Granite Wash Reservoirs in the Anadarko Basin of Oklahoma and Texas

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Since 2002, over one hundred horizontal gas and condensate wells have been drilled in Wheeler Co., TX and in Roger Mills, Beckham, Custer and Washita Counties, OK. These wells produce from Desmoinesian and Atokan Granite Wash reservoirs at depths between 12,000 and 15,000 feet. Most of the horizontals have been development wells in reservoirs already defined by vertical wells, but in a large area of Washita County many of the horizontal wells were exploratory tests that have now merged into a single field. The Granite Wash bearing portion of the Desmoinesian Series ranges in thickness from 1,800 to 3,100 ft across the area. It is comprised of a lower carbonate rich sandstone interval referred to as the “Skinner Wash”, a middle interval of silty marine shale, and an upper series of arkosic sandstones known as the “Marmaton Wash”. The initial fifteen horizontal gas wells were drilled in the Skinner Wash in southern Roger Mills County, Oklahoma between 2002 and 2006. Since late 2006 over one-hundred Marmaton Wash horizontal gas and condensate wells have been drilled, mainly in Washita County, Oklahoma and in Wheeler County, Texas. Recently a number of highly productive horizontals have been drilled in arkosic wash in the upper portion of the Atoka series in Wheeler Co. Horizontal wells typically demonstrate much higher initial rates than nearby vertical wells and also see a 3X to 5X improvement in ultimate recoveries. Greater recovery efficiencies and better economic profiles can be achieved in these reservoirs through horizontal drilling rather than vertical drilling. Lateral lengths and reservoir stimulations techniques have varied among operators, with four or more fracture stages being applied along laterals as much as 5,000 feet long.