

Unconventional Drilling Methods for Unconventional Reservoirs

Doug R. Wight¹ (1) CDX Gas, LLC, Dallas, TX

Traditional surface drilling methods used to extract methane gas from coal and shale reservoirs have historically had low production rates, low recovery factors, do not drain the reservoir uniformly, require considerable surface disturbance to drill, and encounter extended dewatering periods.

In recent years, advances in drilling technologies have allowed some operators to re-evaluate the economic viability of developing some unconventional reservoirs that had been previously discounted due to poor production performance. CDX Gas, LLC of Dallas, Texas has developed a patented drilling system that has dramatically enhanced production recoveries from low permeable coals and shales. The Z-Pinnate Horizontal Drilling and Completion System employs horizontal drilling techniques in a multi-well pattern that create an efficient and environmentally friendly recovery method.

A Z-Pinnate well drilled in a coal seam can deplete 1200 acres from a single small wellsite and typically recover 85 to 90 percent of the gas in place within 30 months. A pinnate pattern allows wells to reach maximum production rates in a matter of days by minimizing the dewatering period. Production profiles show that nearly 75 percent of cumulative production is recovered in the first 24 months along with a dramatic increase in recoverable reserves.

By reducing the number of wells needed to deplete a project area, the Z-Pinnate Horizontal Drilling and Completion System reduces the surface disturbance caused by locations, gathering systems, and production facilities. This technique also reduces project development costs thus improving project economics and minimizing the impact on the environment.