



## **Fracture-Stimulation in the Marcellus Shale—Lessons Learned in Fluid Selection and Execution**

Nathan Houston, Matt Blauch, and Dalton Weaver, III, Superior Well Services, Inc.; and David S. Miller, BLX, Inc.; Dave O'Hara, Snyder Brothers, Inc.

This paper was presented at the 2009 SPE Eastern Regional Meeting held in Charleston, West Virginia, USA, 23–25 September 2009.

### Abstract

This paper provides a look-back review of lessons learned from early exploration to the full-scale development phase of the Marcellus shale in Pennsylvania. Fracture stimulation of over 100 wells has resulted in an in-depth understanding of details needed to achieve optimal frac performance. Much of the necessary learning curve is derived from the empirical testing of theory and what many refer to as “trial and error.” The ability to evaluate and capture the best practices and develop them into a standing operating procedure (SOP) is one of the most important aspects in development of a new unconventional play. Lessons learned involving fracturing strategies and technologies to date have greatly narrowed the learning curve enabling more rapid advancement toward full-scale development.