

Analogues to the Marcellus Shale Provide Effective Methods for Determining Gas Shale Properties

L. Utley, Utley Petrophysics, M. Franklin, Rocky Mountain Petrophysics

Unconventional gas shale reservoirs are the hottest play in the United States. The Marcellus Shale is quickly becoming an important target for domestic exploration. Experience in the Barnett and Fayetteville Shales, analogues to the Marcellus Shale, provide effective methods for utilizing core and log data to their fullest extent. Traditional log analysis has not yielded acceptable results in these reservoirs. Service companies recommend extensive logging suites. Consequently, when the operators rely on the service companies to integrate their core data with logs, the correlations are dependent on the complete and modern log suites. This practice ignores the wealth of log data that already exists, and adds unnecessary cost to the evaluation of these reservoirs. This presentation will show how innovative techniques are used to calculate TOC, porosity, water saturation, and gas-in-place using conventional logging suites. Mechanical rock properties such as Young's Modulus and Poisson's Ratio are also determined from standard log suites. A tremendous benefit of these techniques is the ability to map important petrophysical parameters, resulting from the application to existing log data over large areas. These techniques have been successfully applied to the Marcellus Shale.