

Unconventional Reservoirs: It's All About The Rock!

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Numerous conferences, forums and symposia have been touting the potential and significance of unconventional reservoirs across North America. Companies are using established unconventional plays as analogs for various international opportunities. But in a majority of the cases, it is clear that minimal time is spent on discussing the most critical factor as to these plays: THE ROCK.

Not all unconventional plays are the same. Very few unconventional plays are bona fide shales. Differences in mineralogy and the original depositional environment as well as a horizon's thermal and tectonic history directly impact the reservoir characteristics of these producing horizons. Effective porosity, permeability, water saturation, clay content, present day TOC concentrations and geomechanical rock properties can be effectively analyzed using standard open hole logs to better understand the key economic variables in these resource plays. "Sweet spots" and optimum lateral placement can be identified using this technology. Areas with low potential can be avoided (or at least properly risked).

Despite the fact that the internal P&P systems in these reservoirs are normally on the nano scale, these parameters are still ultra critical in setting up a reservoir system that has the capability of continually "charging" any fracture systems –whether induced or natural – that are developed in geomechanically friendly reservoirs.

In today's talk, examples of several unconventional reservoirs from across the United States will be presented with the focus on the variability and heterogeneity of key petrophysical and geomechanical characteristics within these reservoirs.