

## **The Similarities and Differences in the Hunt for Unconventional and Conventional Hydrocarbons**

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### **Abstract**

The search for unconventional hydrocarbons is not new. It's true that almost 100 years separated the early exploration successes in the synclinal valleys of Central Pennsylvania, to the exploitation of Coal-Bed Methane in a number of basins in the U.S. and Canada in the 1980's. Since the 1980's, however, a quiet revolution began which by today has seen several waves of unconventional resources being pursued with economic success. Coal-bed methane was followed by the search for Center-Basin Gas, Shale Gas and most recently, Liquid-rich Shales (some of which aren't shales).

All of these types of deposits can be categorized as geologically controlled, well technology plays. This simple description lies at the heart of both the similarities and differences in the search and extraction of these types of hydrocarbons. Some have considered the exploitation of these resources as merely a "manufacturing process" requiring only the application of the right "recipe" over thousands of wells across a basin. What we have discovered, however, over the past 10 years, is that ignoring either the variability inherent in the geology, or the technology used to extract the hydrocarbons will lead to failure in a venture.

The need to build a strong foundation of regional to local geologic understanding is the same for both unconventional and conventional exploration, and application of the Play-Based exploration methodology is appropriate in both spheres. In fact, a similar breadth of geologic specialties that crosses the virtually the entire spectrum of a geologic education is required for both.

The scale of variability, and emphasis changes in the jump from conventional to unconventional exploration, but the need to use geology, geophysics and geochemistry to unravel complex facies architecture, mechanical stratigraphy, structural variability, stress states, fluid characteristics, temperature and pressure through time, diagenesis, and porosity distribution, etc. remains at the core of the exploration effort. The differences come in two flavors. First, is the geologic scale of the observations that need to be obtained and understood, and second is the tight integration of production technology with the exploration effort. There is no passing of information "over the fence" from exploration to drilling, to facilities design and ultimately production teams. To be successful, the functions have to work closely and in harmony throughout the life cycle of a venture.