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Petroleum Systems of the Utah-Wyoming Thrust Belt: Paradigms, Myths, and New Frontiers

The technology climate of the past few years has facilitated a re-emergence of geochemistry as a fundamental tool in the energy exploration and exploitation industry. The fusion of this discipline with others, such as structural geology, creates the opportunity to test prevailing paradigms, expose myths, and identify new frontiers. While the Covenant field discovery in the Utah (Sevier County) thrust belt demonstrated the need for paradigm revision, the discovery also provides the opportunity to re-examine paradigms throughout the thrust belt. Succinctly stated, many petroleum system concepts applied in the Rocky Mountains were developed in the early period of geochemistry (1970's) and due to circumstances of the decades long downturn in exploration, left the process of paradigm testing in a state of neglect. Specific Utah-Wyoming thrust belt topics addressed include:

- conventional source rocks for hydrocarbon charge,
- role of coals in providing effective oil charge,
- fault juxtaposition for effective hydrocarbon charge,
- overpressure mechanisms and hydrocarbon expulsion,
- coal as a hydrocarbon reservoir, and
- prevailing hydrocarbon migration vectors.

The systematic analysis of each topic within a petroleum systems framework of essential elements and processes provide numerous new frontiers for exploration throughout the region.