

Jeanne d'Arc Basin core studies unlock basin development secrets

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The Global Petroleum Resource Evaluation Group (GPREG) has initiated studies of all core from the Jeanne d'Arc Basin in order to address questions of basin tectonic development, sedimentologic character, diagenetic modification, and hydrocarbon reservoir characterization. Sediments range from conglomerates sourced in Precambrian basement sediments, to sandstones of varied depositional environments, to oyster biostromes flanked by debris talus. Braided fluvial pebble conglomerates, shoreface bars, storm washover lobes, bioturbated and burrowed lagoonal and bay sands and muds, tidal channel lags, supratidal pond muds are but a few of the facies encountered. Diagenetic carbonate lenses and beds appear to be strongly facies controlled with spillover into adjacent facies. Such carbonate lenses act as

reservoir partitions, as do the numerous facies changes. Soil zones are numerous. Shallowing and coarsening upward intervals reflect both regressive and transgressive sequences. Integration of core and well logs illustrates the interaction of shallowing sequences in overall transgressive settings. Present studies have begun in the Avalon and Ben Nevis formations. Hibernia sands are being studied in a newly initiated project. South Tempest sandstones are being studied as part of the investigation of the relationship of the Rankin carbonates to the stratigraphically lateral Downing Formation shales. Such detailed core analyses illustrate clearly the conflict encountered by proponents of seismic sequence stratigraphy concepts when applied to tectonically active basins.