



Figure 1: Geopressure Pods

Geopressure Pods

TMI-05 explains the physics of a base building block of dynamic replenishment. Certain oil and gas fields dynamically refill during historical time frames. Often this is referred to in the industry as Reserves Growth. Between 1988 and 2006 the Global Basin Research Network (GBRN), started at Cornell and Lamont Doherty Earth Observatory at Columbia University, both in New York, studied dynamic replenishment of certain Gulf Coast oil and gas fields. The early focus was Eugene Island 330. As a co-founder of the GBRN, Roice Nelson has based DRC on exploiting these concepts.

Geopressure seals explain why over 75% of Gulf Coast Fields are within 2,000 feet of top geopressure. At Geokinetics Roice mapped up to 5 geopressure seals at different depths on the Gulf of Mexico Shelf. The left side of Figure 1 shows the concept of constant pressures occurring at certain isotherms. These constant pressures are due to vapor locks formed by gas exsolution forming bubbles in the pore throats of fine grained silts and shales. These pressure seals can cross structure and stratigraphy. They form a whole new class of exploration targets in siliciclastic basins worldwide. The right side of Figure 1 shows a map of the top of the shallowest geopressure pods across Colorado County Texas.

DRC proposes a \$2 million investment to map the geopressure pods across the U.S. Gulf Coast. These geopressure pods will be correlated with existing fields, and used to predict undiscovered fields. The initial investment will enable DRC to map and high grade opportunities, to set out a detailed business plan, to lease, and to sell drilling and development of the best opportunities. The opportunities are anticipated to be 20 BCF to 50 BCF each (\$80 million to \$200 million each), and DRC anticipates hundreds, if not thousands of opportunities.

Dr. Sam LeRoy and H. Roice Nelson, Jr. are the technology team leaders for this technology.