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Gas in Antithetic Fault Blocks of the Pattani Trough, Thailand. An under appreciated play?

The Pattani Trough is a rift basin, filled primarily with non-marine sediments. During initial rifting, a series of half grabens formed, but more widespread deposition followed, when a sag phase of subsidence began. Differential subsidence in the sag phase caused tension that produced a set of grabens running parallel to the basin axis. Gas is trapped within the grabens through a combination of structural and stratigraphic factors, where channel complex sandstones are terminated up dip by faults.

Sedimentary strata cut by normal, down to the basin faults have been rotated counter to the regional dip. Conversely, strata cut by antithetic faults have been rotated toward the basin center, and dip is accentuated.

Conventional wisdom has maintained that potential reserves in the antithetic fault blocks are low, and drilling results have failed to alter this perception. This view has delayed the development of portions of several fields. Reservoirs in antithetic fault blocks have dips on the order of 10 to 11 degrees, as opposed to dips of around 2 degrees on the opposite side of the graben systems. Steeper dip will result in smaller reservoir areas if gas column heights are similar.

Platforms that develop antithetic fault blocks do, on average, tend to have lower reserves than those placed on the opposite side of the graben system; however, the gas recovery per well is still acceptable. Recent drilling results will be presented with comparisons to wells drilled in other plays.