

**AAPG International Conference  
Barcelona, Spain  
September 21-24, 2003**

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**Techniques to Quantify the Resource Potential of Pervasive Shallow Biogenic Gas Systems in the Western Canada Sedimentary Basin**

An article by Schmoker in the November 2002 AAPG Bulletin (pp. 1993) addressed some of the difficulties in quantifying the resource potential of continuous gas systems over large areas. These same difficulties manifest themselves in the evaluation of pervasive, under-pressured, biogenic gas systems in the Western Canada Sedimentary Basin (WCSB).

Recently continuous gas systems have been recognized in the Maastrichtian and Paleocene sediments of the WCSB at depths as shallow as 200 metres (650 feet). To date there is very little production from these zones. This precludes a resource assessment based on reservoir performance. Instead a Gas in Place assessment was used to evaluate a stratigraphic section occurring from surface to 1400 metres (4500 ft) depth in 3200 digital well logs distributed across a 12,800 km<sup>2</sup> (4950 mi<sup>2</sup>) area. Average well log distribution was 1 well per 4 km<sup>2</sup> (1.5 mi<sup>2</sup>). A multi-disciplinary approach was utilized encompassing high resolution stratigraphy, hydrogeology, top to bottom petrophysics and volumetric reservoir modeling to obtain realistic resource estimates.

As seen in many other continuous gas systems, the gas in place (GIP) resource numbers for the Maastrichtian and Paleocene are considerable. By applying a minimum 18% porosity cut-off to the net reservoir and average porosity calculations typical GIP reserve potentials of 70.8 E6m<sup>3</sup> (2.5 billion cubic feet) per square mile (2.6 km<sup>2</sup>) were identified.

At these shallow depths, and with the existing gas production infrastructure in the WCSB much of this gas is economic at recovery factors as low as 30-40%.