

AAPG HEDBERG CONFERENCE

“Deformation History, Fluid Flow Reconstruction and Reservoir Appraisal in Foreland Fold and Thrust Belts”
May 14-18, 2002, Palermo – Mondello (Sicily, Italy)

**RESERVOIR PRODUCTION BEHAVIOR IN A HYDRODYNAMICALLY
CONNECTED FRACTURED CARBONATE, THE MISSISSIPPIAN DEBOLT
FORMATION, SIKANNI AREA OF NE BRITISH COLUMBIA, CANADA**

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The Mississippian Debolt Formation in the foothills of NE British Columbia traps gas in a number of faulted structures, one of the largest of which is the Sikanni Field, comprised of the Debolt A, B and C Pools. Hydrodynamic analysis in the vicinity of the Sikanni Field showed the presence of a fresh water charged aquifer in communication across major faults underlying the gas pools in the area. Analysis of early pressure data from the Sikanni Field indicated the presence of a common 400 meter gas column.

The original gas in place for the C Pool calculated from decline analysis after 3 years of production was 227 BCF, with an assigned recovery factor of 85% for 190 BCF recoverable. To date the C pool has produced nearly 97 BCF but 6 of the 7 wells have watered out with only 43% of the gas recovered. Despite a downward revision of the OGIP to 193 BCF, yielding a 50% recovery factor to date, much of the gas remains unrecoverable. What happened to the remaining gas? Was the pool optimally developed? Could the early understanding of the hydrodynamic setting and pool behavior have pointed us towards a more accurate ultimate recovery factor for the C Pool?

This paper will explore possible causes of the low recovery factor for the Sikanni C Pool. Unforeseen reservoir compartmentalization, water coning and a higher than anticipated volume of gas being stranded at residual gas saturation may explain why 50% of the OGIP has been orphaned.