

**An Integrated Biostratigraphic, Sedimentologic and Diagenetic Study of the Ksituan Member, Belloy Formation, East-Central British Columbia and West-Central Alberta**

Ian M. Porter\*  
University of Calgary, Calgary, AB, Canada  
\*fractureline@hotmail.com

and

Michael L. Wamsteeker, Ronald J. Spencer and Charles M. Henderson  
University of Calgary, Calgary, AB, Canada

The Ksituan Member is a carbonate unit and the lowest member of the Belloy Formation, which is correlated with the Moscovian stage of the Pennsylvanian sub-system. It is bounded above by the Middle Belloy sandstone, and below by the Taylor Flat Formation. The Ksituan Member was deposited in the Peace River Basin, a distinct embayment of the Panthalassa Ocean into the margin of northwest Pangea.<sup>1,2</sup> Much of the stratigraphy, sedimentology and diagenesis of the Ksituan Member is not fully known, despite this unit being a target of hydrocarbon exploration. This integrated, multidisciplinary study involving examination of core and well logs, collection of geochemical data (stable isotope, and fluid inclusion), information from petrographic microscopy, and paleontological data (conodont biostratigraphy, colour alteration index) will enhance the understanding of the diagenetic, stratigraphic, and tectonic history of this unit.

Reservoir sequences within this carbonate succession have been correlated from Alberta to British Columbia using conodont biostratigraphic data. In addition to the sedimentologic and stratigraphic controls on reservoir development, diagenetic factors appear to exert a strong influence. In east-central British Columbia this diagenetic control is demonstrated by the presence of productive dolostone reservoirs closely neighbouring unproductive limestone units. Preliminary results indicate a complex diagenetic, stratigraphic, and tectonic history of this unit.

**References**

Henderson, C.M., Richards, B.C. and Barclay, J.E. 1994. Chapter 15: Permian Strata of the Western Canada Sedimentary Basin, in Geological Atlas of the Western Canada Sedimentary Basin compiled by Mossop, G. and Shetsen, I.

Henderson, C.M., Dunn, L., Fossenier, K. and Moore, D. 2002. Sequence Biostratigraphy and Paleogeography of the Pennsylvanian-Permian Belloy Formation and Outcrop Equivalents in Western Canada. Canadian Society of Petroleum Geologists, Memoir 19, p. 934-951.