

## **Fabric Selective Impacts on Reservoir Quality and Permeability Anisotropy in Sedimentary Facies of the Montney Formation, Northeast British Columbia**

**Thomas F. Moslow<sup>1</sup>, Beth Haverslew<sup>2</sup>, and Heath Pelletier<sup>3</sup>**

<sup>1</sup>Moslow Geoscience Consulting, Calgary, Alberta, Canada

<sup>2</sup>Altamin Resources (1978) Ltd., Calgary, Alberta, Canada

<sup>3</sup>Talisman Energy Inc., Calgary, Alberta, Canada

### **Abstract**

A detailed multi-disciplinary study of the Montney formation in the greater Farrell Creek-Altare area of Northeastern British Columbia conducted by geoscientists from Talisman Energy and Sasol Petroleum International has provided significant insight to the origin, heterogeneity and predictability of reservoir quality enhancement in specific sedimentary facies. Detailed sedimentologic, petrographic and rock properties analysis of over 560m of full diameter core from 12 wells in the study area has led to the recognition of a fabric selective control on reservoir quality, pore throat size distribution and permeability anisotropy. Variability in sedimentary fabric (i.e. texture, sorting, net/gross, physical and biogenic sedimentary structures) is linked directly to sedimentary facies and corresponding depositional environments. As such, a predictive framework has been derived for the distribution of better/best reservoir quality facies that are mappable through calibration of facies to well log response and character. The mapping of reservoir facies- tracts provides a close match to well performance by Initial (IP) and first 12-month (F12mo) production.

The recognition of sedimentary fabric and facies relationships to reservoir quality provides a predictive and mappable framework, as observed in Geomodel reconstructions, for the trend and distribution of “sweet spots” in the Montney formation both spatially and stratigraphically within the study area.