Integrated Petrological, Petrophysical and Geological Study of the Reservoir Quality of the Cadomin Formation in the Deep Alberta Basin.

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Summary

An integrated petrological, petrophysical and geological study was conducted on the Cadomin Formation in the Deep Alberta basin. This study utilized data collected from core, drill cuttings and well logs to determine the reservoir quality and hydrocarbon potential of the Cadomin Formation sandstones and conglomerates.

A detailed petrographic study showed the presence of six distinctive petrographic facies based on the abundance of monocrystalline quartz, ductile lithic clasts and chert. Natural fracturing is also a key component adding to the overall reservoir quality in these otherwise tight petrographic facies.

Core to well log calibration techniques were employed to define porosity and permeability heterogeneity in the highly variable Cadomin facies. The petrographic data was then compared to the petrophysical characteristics of the Cadomin sandstones and conglomerates to more accurately define productive reservoir units within the Cadomin. In general, these data sets were found to be in good agreement.

This talk will focus on the methodology used and results to establish a rock-log calibration model based on petrographic facies analysis, petrophysical characteristics and how the data set compares to geological interpretation.