Mineralogical Characterization of the Upper Devonian Duvernay Formation of Alberta, Western Canada Sedimentary Basin

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Abstract

The Frasnian (Upper Devonian) Duvernay Formation is a significant target for unconventional exploration initiatives in Alberta, particularly for liquids. We focus on the origin of variability in the Duvernay that is significant to the producibility of hydrocarbons, which in other reservoirs may reflect variations in primary composition, diagenetic alteration, thermal maturity, sediment source, primary production, clay content and hydrodynamic conditions. Shale composition exerts control over porosity and pore size distribution and the potential of the pore system to store and deliver gas. We report here on preliminary results from high resolution geochemical datasets in long continuous cores from our first two wells, one in the East Shale Basin and one in the West Shale Basin,. ICP and ICP-MS techniques were used to analyze major, minor and trace elements. Organic matter was analyzed using LECO-TOC and Rock-Eval.

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