

Petrological Insights Into Potential Hydrocarbon Source Rocks (Including Coals!), Thermal Maturity And Timing Of Hydrocarbon Migration In The Bowser Basin, Northeast British Columbia

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ABSTRACT

The identification of strata within the oil generation and preservation window, live oil shows, migrated bitumen, and petroleum inclusions in diagenetic cements in Jurassic and Cretaceous strata of the Bowser basin British Columbia has revitalized an interest in the petroleum potential. Biological markers of solvent extracts of some of the oil stains and solid bitumen have been used to infer geological ages, lithology, depositional setting (i.e. marine versus terrestrial; salinity), however recognition of significant potential hydrocarbon source rocks is critical to confirming that a substantive petroleum system exists in the Bowser Basin. This presentation summarizes our work to date to 1) identify a substantive source rock and 2) track and constrain the timing of petroleum migration and thermal maturation in the basin using organic petrology, diagenetic studies (reflected and transmitted white and fluorescence microscopy, SEM imaging, fluid inclusion microthermometry), and Rock Eval pyrolysis.