The Sedimentology And Geochemistry Of The Second White Specks Formation, North/Central Alberta, Canada

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ABSTRACT

The Second White Specks Formation accumulated during the Cenomanian-Turonian transgression of the Western Interior Seaway. The Formation is unique due to the anomalous metal concentrations found in northern Alberta, its calcareous content and high total organic carbon content. The Second White Speck's has a potential as a source and reservoir rock with an estimated oil production potential of more than $20x10^6m^3$. Thermal maturity values have also shown the Second White Specks to be dominantly immature, but may provide biogenic gas in eastern Alberta. The unit has also been shown to contain Type II and Type III kerogens with thermal maturity in the west of the sedimentary basin. The Formation has been well studied in southern Alberta, however less is known about the unit's properties in central and northern Alberta. To be able to characterize and recognize the beds in north/central Alberta, paleontology, facies analysis (using core and well logs) and geochemistry have been applied, and used in conjunction with the correlation of geophysical logs to produce a regional sequence stratigraphic framework. This characterization will help with the correlation between the previous work in southern Alberta and the Formation in north/central Alberta. A total of 28 cores between 58^o-52.5^o latitude and 110^o-120^o longitude have been logged in detail. Through the correlation of 120 geophysical logs of the unit from wells in NE Alberta with wells from central Alberta, six regional cross sections have been constructed, in order to produce a unified paleogeographic model across Alberta.