

Possible Late Cretaceous To Tertiary Structural Control On Basin Configuration, Southern Nechako Area

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ABSTRACT

The Nechako "Basin", as traditionally outlined in British Columbia Ministry of Energy and Mines publications, delineates a region where thick sections of Jura-Cretaceous and younger sedimentary rocks are inferred to underlie a thick cover of Tertiary volcanic rocks and Quaternary glacial deposits. Recent surface mapping and integration with existing geophysical data suggest that the southern extent of this area most likely contains the thickest, most contiguous sections of sedimentary rocks. Thermal maturation data suggest that these Jurassic and younger strata lie within the oil and gas window. Furthermore, the prevalence of Type III bitumen within the sedimentary sequence suggests the basin to be gas prone.

Canadian Hunter Exploration Ltd. carried out an extensive geophysical survey in this area during the late 1970's and early 1980's as part of a regional exploration program. Gravity data acquired during that survey reveal the presence of several large, northwest-trending negative anomalies, indicative of thick sedimentary sections. Correlation of the anomalies with aeromagnetic and surface geological data, suggests these sedimentary sections (?) may be 'sub-basins' genetically linked to large transcurrent fault systems of Cretaceous and Tertiary age which bound the area to the southwest and east (Fraser and Yalakom-Hungry Valley fault systems).

The presence of over 2000 metres of Late Cretaceous to Tertiary sediments and capping volcanics above an equal thickness of Early Cretaceous strata within the Chilcotin b-22-k well supports this interpretation. Some of these 'sub-basins' have been explored for hydrocarbons with mixed results, yet the exploration potential of several other 'sub-basins' is unknown. Only 9 wells have been drilled in the southern Nechako Basin, an area that covers more than 50,000 km² and existing seismic data are both spatially limited and low resolution. The BC

Ministry of Energy and Mines (together with potential industry partners) is actively planning new geophysical and geological studies to provide a better delineation the subsurface in this region and of its hydrocarbon potential.