

Intergration of Multiple Technologies in Northern Frontier Exploration

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Abstract

Husky Energy and its co-venturers have been involved in two recent discoveries in the Keele-Summit area, Central Mackenzie Valley, NWT. The Summit Creek B-44 well encountered hydrocarbons in the Devonian and the Stewart D-57 well found gas in the Cretaceous. Interest in the area was initially kindled by recognition that circular features on the GSC's hi-resolution aeromagnetic survey could represent closed structural traps. Single fold trade data showed a thrust structure that encouraged the consortium to acquire lands. The area has limited well control, so exploration efforts progressed by integrating a wide variety of prospecting tools and data sets including satellite imagery, hi-resolution aeromagnetic, gravity, topographic and geomorphologic data (particularly hi-resolution LIDAR), geological field mapping, hydrocarbon micro-seep detection, and reprocessed vintage trade and modern 2D seismic data. Not every technique or data type has proven successful; most notably the micro-seep survey was a disappointment.

Husky's approach has been to manage exploration programs in this high cost frontier environment by using relatively low cost, areally extensive potential field and remote sensing data to high grade features of interest. Geological field mapping has proven invaluable to ground truthing the structural interpretations and also provides samples for petroleum system analysis. Through this process, expensive new seismic acquisition can be focussed on developing drilling prospects. The integration of the new seismic with the other data leads to improved interpretation. In addition to the benefits for prospect generation, the remote sensing data (ie. Lidar) is invaluable for road access, well lease, and field program planning. This presentation summarizes the results of the methodology employed to date.