

A Balanced Approach to Optimization of an Unconventional Liquids Rich Montney Resource in the Greater Wapiti Region of Alberta

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Abstract

The Montney formation in the greater Wapiti area (Alberta Canada) is a thick (200m+) section of hydrocarbon-charged fine-grained reservoir found at depths ranging from 2,500 – 3,500m. The Montney has been exploited in Western Canada utilizing horizontal wells for nearly a decade with successful developments stretching from Kaybob, AB, to Cameron, BC. Originally, horizontal developments focused on mostly dry gas regions of the Montney. However, more recently, operators have concentrated their efforts on testing and developing the liquids-rich portion of the immense Montney fairway. Within the wet gas – retrograde condensate fairway from Elmworth to Karr the Montney exhibits liquid yields that range from 25 to >200 bbls/mmcf, permeability that ranges from nanodarcy to microdarcy, and original gas in place per section as high as 150 Bcf. Encouragingly, exceptional production rates (IP30) of greater than 2,000 boe/d are being achieved across the map sheet.

In the early stages of data collection and reservoir delineation in resource plays, our knowledge and understanding of reservoir quality, hydrocarbon-in-place, liquid yield, and geomechanical parameters is at its minimum. On top of this, well and fracture design is an engineered variable that can dramatically affect well results which can make interpretation of variable results difficult. For small to mid-cap operators who cannot afford potentially risky experimentation and do not have large in house technical specialty groups it can be a delicate balance between the risk and reward of change when failure can affect the bottom line. Most importantly, is it possible to attribute the success or failure of a well's performance to either the fracture design or reservoir heterogeneity early on in the development of a play?

This talk will cover NuVista's approach to optimization and provide examples of improved well performance through both the evolution of frac design and strategic placement of the horizontal wellbore with selected target zones.