

Understanding subsurface controls on operations in Kakwa

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Summary

Challenging commodity price environments coupled with mounting pressure to generate free cash flow have made it increasingly important for unconventional operators to reduce well costs without compromising production performance. Hydrocarbon exploitation within the Triassic Montney Formation in Alberta is no exception. Alignment between reservoir quality and operational trends in the Kakwa field were observed when combining an integrated Montney geomodel with robust operational data sets.

Theory / Method / Workflow

In this session we will provide insight into key Montney Formation properties that drive operational key performance indicators (KPI's) in Kakwa. Using seismically guided structure and petrophysical models we will highlight the benefits associated with spatially digitizing drilling and completions information within the 3D geomodel. Additionally, we will review the depositional, petrophysical and mechanical nature of the Montney within key development benches on ARC's Kakwa River acreage to explain why such relationships between reservoir quality and operational trends exists.

Results, Observations, Conclusions

Understanding the subsurface impact on drilling and completions has contributed to better operational practices and budgeting resulting in cheaper wells and higher-confidence planning and forecasting. Targeting mechanically favorable rock have locally demonstrated significant increases in drilling and completions KPI's. This can lead to material cost reductions. Furthermore, continuing to model and understand the distribution of trends has led to layer-specific changes in completions design and planning practices.

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