

## **Prudent and Integrated Approach to Understanding Wellbore Stability in Canadian Foothills to Minimize Drilling Challenges and Non-Productive Time**

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### **Abstract**

A proactive and analytic tasks were undertaken to circumvent anticipated drilling problems in a challenging Canadian Foothills project. The geology and structure were complex with multiple sheets of overthrust fault and highly dipping beds. Some of the faults were associated with coal seams which was one of the major concerns in terms of wellbore stability if the borehole drilled through such zones. Therefore, a comprehensive study was performed using several offset well data to predict instability across three coal zones. Additionally, fault stability analysis was done for all the faults. Based on wellbore and fault stability analysis, and offset wells drilling events' log, a drilling strategy was mapped taking into consideration all the risks, mitigation, and prevention of possible drilling problems with the best mud weight and trajectory design recommendation. The results from this study helped drill the challenging well with no major problems.