

McLellan, P.J. and Cormier, K., Borehole Stability in Dipping Fissile Shales, Northeastern British Columbia, SPE 35634, SPE Gas Technology Symposium, Calgary, Alberta, April, 1996.

Abstract

A detailed investigation of borehole instability in the Foothills region of Northeastern British Columbia, Canada is described. Costly problems due to hole collapse have been experienced during the drilling of deviated wells through dipping, fissile shales in the region. An integrated field and laboratory research study of the Fernie Formation was undertaken including the cutting of an 18 m core, petrophysical and rock mechanics testing, and borehole stability modelling. Key insights into the mechanisms of instability have been gained from the logging of discontinuities in the core and ultrasonic borehole imagery acquired in the well. Triaxial strength measurements are used to model the development of yielding in the rock mass and along bedding plane parallel fractures using 3D geomechanical software. Recommendations for selecting appropriate drilling fluids, planning hole trajectories and reducing problem time in similar settings are provided.

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