

*McLellan, P.J. and Hawkes, C.D., User-Friendly Borehole Stability Software for Designing Horizontal and Deviated Wells, Presented at the CADE/CAODC Spring Drilling Conference, Paper 99-101, Calgary, Alberta, April 7-8, 1999.*

## **Abstract**

Drilling and completion problem costs are often associated with borehole collapse and lost circulation in weak, pressure-depleted sandstones and fissile or reactive shales. These issues may arise in tectonically deformed areas, deep offshore settings, overpressured basins and heavy oil reservoirs as new horizontal drilling and recovery technologies, such as underbalanced techniques, become more popular. Better well planning tools are required to determine the optimal window of bottomhole pressure and the best fluid properties to drill and complete vertical, horizontal and deviated wells in these areas. A user-friendly PC Windows-based software package called STABView has been developed to help the well designer avoid or mitigate the risks of catastrophic hole collapse and lost circulation. The software has been designed to perform rapid parametric analyses for all types of wells in most geological settings. Guidance in the selection of rock properties and stresses is provided to the user with an online database of typical values and a comprehensive help utility. Mud-shale interaction effects are included with an improved osmotic pressure model based on chemical activities. Applications of the software to overbalanced drilling in an unstable shale and underbalanced drilling and completing of horizontal wells in weak sandstones are demonstrated.

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