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## **Abstract**

Underbalanced drilling techniques are often considered to avoid or mitigate formation damage, reduce lost circulation risk, and increase drilling rate of penetration. However, drilling with a bottomhole pressure less than the formation pore pressure will usually increase the risk of borehole instability due to yielding or failure of the rock adjacent to the borehole. Numerous theoretical models for assessing borehole collapse and fracture breakdown risks exist. However, until recently, it has been difficult for non-specialists to use many of these models because they are not easily implemented, or because they required input parameters that are unfamiliar or difficult to obtain. A user friendly PC Windows<sup>TM</sup>-based software package called STABView has been developed to help the well designer determine the optimal range of bottomhole pressure for underbalanced drilling, i.e., the bottomhole pressures that are high enough to avoid severe hole collapse, yet low enough to avoid initiating hydraulic fractures. 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 in situ stresses is provided to the user with an online database of typical values and a comprehensive help utility. Applications of the software to underbalanced drilling of horizontal wells in a number of sandstone reservoirs are demonstrated.

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