Fault and Fracture Influence on Reservoir Performance in the Eolian Sandstone Reservoirs of Covenant Field, Sevier County, Utah

Emily E. Hartwick[1], Keith R. Johnson[1], Andrew J. Barrette[1], Edward A. Higuera[1], Alexey Romanov[2], and Thomas W. Zadick[3]

[1]Wolverine Gas & Oil Corporation
[2]Sproule
[3]Reservoir Engineering & Project Management

Abstract

The Covenant Field produces from two eolian sandstones: the Lower Jurassic Navajo Sandstone and the Middle Jurassic White Throne Member of the Temple Cap Formation. While these sandstones are separated by the approximately 50-foot-thick non-reservoir Sinawava Member of the Temple Cap, multiple large-scale normal faults that formed during Basin and Range extension provide pressure communication between the two productive sandstones. Open fracture frequencies in the White Throne correlate to distances from normal fault zones. Recent completion efforts have benefitted from an awareness of open fracture frequency.