

Reducing the Risk of Compromised Frac Stages by Optimizing Zonal Isolation Packer Placement Using an 8 Arm High Resolution Microresistivity Imaging Tool

*Daryl B. Curtis, Graham A. Cameron, Geoff M. McBryan, Chris R. Walsh
Weatherford Canada Partnership (Petroleum Consulting)*

Abstract

Traditionally, in horizontal completions utilizing packer style systems, zonal isolation packers are placed without knowledge of the precise borehole geometry at each packer depth. The most critical variable in setting packers is borehole geometry because packers have hole size and pressure tolerances that, if exceeded, compromise the sealing ability of the packer. Packers that fail to seal properly will increase the frequency of compromised hydraulic fracturing stages, which result in lower hydrocarbon drainage. If packers are placed optimally, the likelihood of obtaining a seal and preventing leakage around the packer is less, thus allowing those stages to fairly contribute to hydrocarbon production. This paper will explain a new technique to optimize packer placement using formation evaluation data from a high-resolution, 8 arm Compact™ microresistivity imaging tool. Fracability indices based on several critical data inputs, such as borehole geometry, clay volume, fractures, and fault locations will give explanation on how to optimize packer placement.