GST Abstract:

Title:

Geomechanically driven facies models applied to completions optimization

Abstract:

Geomechanical data acquired in lateral wellbores can be used to optimize completions design. Perforation placement can be optimized using the minimum horizontal stress gradient, placing perforations in areas of like stress, and minimizing the stress differential within each stage increasing cluster treatment efficiency. Further optimization can be achieved through the application of geomechanical facies analysis. Calibrated mechanical facies models are developed in a pilot hole where wireline logs are acquired. Horizontal well geomechanical facies are calibrated to vertical pilot models, revealing areas of varying rock properties, and areas of varying stress. Understanding the relationship between mechanical facies, perforation efficiency, and completion response allows operators to become predictive, and therefore proactive rather than reactive, in hydraulic completions.