

Meeting the Demand for Geomechanics Insight and Strategy in the DJ Basin

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The Niobrara Formation in the Denver-Julesburg (DJ) Basin has recently become a major oil and gas target in the United States Rocky Mountain region. Lateral changes in rock mechanical properties and horizontal stress is known to occur over relatively short distances in the DJ, making it difficult to plan for wellbore stability issues and to design optimal hydraulic fracture treatments. The key objective of this presentation is to show an understanding of the geomechanics of the Niobrara Formation in the DJ Basin at both a core and log scale, through example datasets. The geomechanical process will be presented through 1D mechanical earth models (MEMs) with wellbore stability simulations. These MEMs are calibrated using publically available core information that is compiled and analyzed to develop regional mechanical property correlations for the Niobrara and surrounding formations. The result is an understanding of the geomechanics behind the drilling and completion challenges faced by operators, and methods and recommendations for combating those obstacles.