Integrating Dipole Sonic Logs into an Effective Geomechanical Study

Tom Bratton, Ph.D.
Tom Bratton LLC

Thursday, April 20, 2023, 9 a.m. Central Time

Dr. Tom Bratton is the President of Tom Bratton LLC. His presentation will be at 9:00 a.m. Central Time on Thursday, April 20, 2023. The topic is **"Integrating Dipole Sonic Logs into an Effective Geomechanical Study."**

Abstract

Integration is the synthesis, or bringing together, of multiscale and multidisciplinary data to solve complex multivariate problems. There are several geoscience disciplines that form the prerequisite foundation for a geomechanical study including: large scale geology and geophysics, borehole geology, geochemistry, petrophysics, borehole geophysics, and rock physics. Only after these specialized disciplines have been thoroughly evaluated can the results be integrated into a quality geomechanical study. This talk concentrates on what geomechanical engineers need to know about dipole sonic processing and results to integrate this critical data into the geomechanical model. The accurate interpretation of any discipline can often be seen as an exercise in complication management. The major complications in dipole sonic processing and interpretation will be highlighted in this presentation and suggestions will be provided to better assess and communicate the complications. Results from the dipole sonic logging of two geothermal wells, the Forge 58-32 well, also known as MU-ESW1, in Beaver County, Utah and the Forge 21-31 well in the Carson Field, Nevada, will be highlighted in terms of the effective use of the dipole sonic data in any subsequent geomechanical study.

Biography

Tom Bratton is a consultant to the oil and gas industry specializing in geoscience applications for engineering operations. After retiring from a 36-year career with Schlumberger, he was a Visiting Professor and Research Associate in the Petroleum Engineering Department at Colorado School of Mines (CSM). While at CSM, he enrolled as a graduate student and earned his PhD in Geophysics. Before starting his consulting business, Tom was a scientific advisor to Schlumberger's senior management, specializing in petrophysics, geophysics, and geomechanics with a broad base of experience in drilling, completion, and reservoir engineering. Tom is a full member of the Society of Petroleum Engineers (SPE), Society of Petrophysicists and Well Log Analysts (SPWLA), Society of Exploration Geophysicists (SEG), European Association of Geoscientists and Engineers (EAGE), and the American Rock Mechanics Association (ARMA).