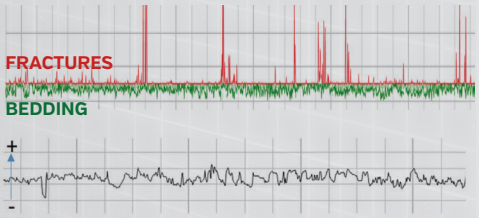
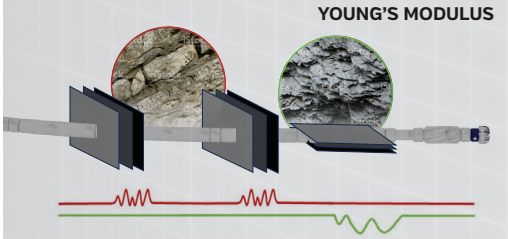
Fracture ID

DEFINE THE NATURAL HETEROGENEITY OF THE ROCK

Fracture ID's Drillbit Geomechanics™ uses a three component accelerometer to measure stress/strain in three dimensions as the PDC bit traverses the formation. While an isotropic Young's Modulus and Poisson's Ratio is delivered for reservoir characterization, the variations in its anisotropic response are studied to predict variations parallel and perpendicular to the well. As the PDC bit's cutterheads encounter increased or decreased layering this response is captured as bedding, which is a good proxy for clay content along the well. When the reservoir exhibits high frequency variations laterally these can represent faults and/or fractures or other more chaotic environments such as debris flows or upturned bedding.





FOR MORE INFORMATION, CONTACT US AT

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TAILOR-MADE COMPLETIONS DESIGN FOR OPTIMUM SUCCESS

Production and financial success of a lateral well is often dictated by the changing reservoir properties from the heel to the toe. Some sources of lateral heterogeneity include: variations in depositional environment, burial history, and changes in mineralogy. Regardless of the source, these lateral variations affect how the well responds to stimulation and ultimately total production.

At Fracture ID, we identify geomechanical changes while drilling to tailor the well's completion to the rock it has encountered. We apply proven engineering, geological and petrophysical techniques to create a geomechanical facies distribution model for each well. This leads to characterization of lateral variability along every well for completions planning, including treatment performance prediction and increased perforation cluster efficiency.

MORE ACCURATE ANALYSIS IN LESS TIME

Alternative methods of analysis can be intrusive, slow and cost prohibitive. Most traditional petrophysical tools sample over a 2 – 4ft resolution interval. Compared to FractureID's sub-inch resolution.

Fracture ID records data continuously in time as a function of drilling speed (Rate of Penetration or ROP) at frequencies greater than 1000Hz. At average ROP, we achieve spatial resolution at a sub-inch scale. This extremely high-resolution data can be used to identify the detail in small geological features at very fine levels, such as fine laminations or localized lithological changes. While most applications will not require sub-inch scale it is important that it be measured so that when upscaling those small features with large impact can be captured and studied such as bentonite layers or ash beds.