

AGR

AZIMUTHAL GAMMA RAY IMAGING

APPLICATIONS

- Real-time well placement
- Well-to-well correlation
- Steering within formations with dipping beds

ADVANTAGES

- Enhances steering within sweet spots using formation dip
- Increases in-zone percentage for enhanced production potential
- Provides focused gamma ray (GR) option for sliding
- Enhance geological evaluation when combined with spectral GR

With the addition of gamma ray imaging, the TelePacer* modular MWD platform reveals bed crossings, leading to improved decision making and increased production potential. By providing formation dips, GR imaging logs guide real-time well placement and well-to-well correlation.

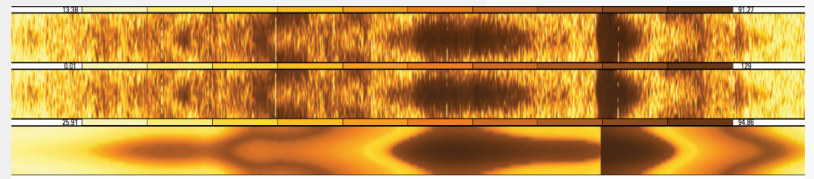
IMPROVE IN-ZONE PERCENTAGE AND ROP WITH FORMATION EVALUATION

Receiving real-time image logs from the TelePacer platform helps you steer within sweet spots to increase in-zone percentage. By avoiding drastic geosteering corrections, sliding is minimized and ROP is improved. These benefits are inherent to using GR imaging, which identifies early signs of changes in lithology and determines well trajectory and wellbore position.

ENHANCE GEOLOGICAL EVALUATION AND COMPLETIONS DESIGN

To significantly enhance geological evaluation, spectral GR can be added to the TelePacer platform to provide elemental context (potassium, thorium, and uranium) for changes in the GR imaging log. Together, GR imaging and spectral GR also reveal points of lower, uniform stress, which are ideal for placing fracture clusters.

GR imaging data improve formation evaluation and well placement, leading to opportunities for overall performance improvement.



Real-time gamma ray imaging confirms geological model while drilling

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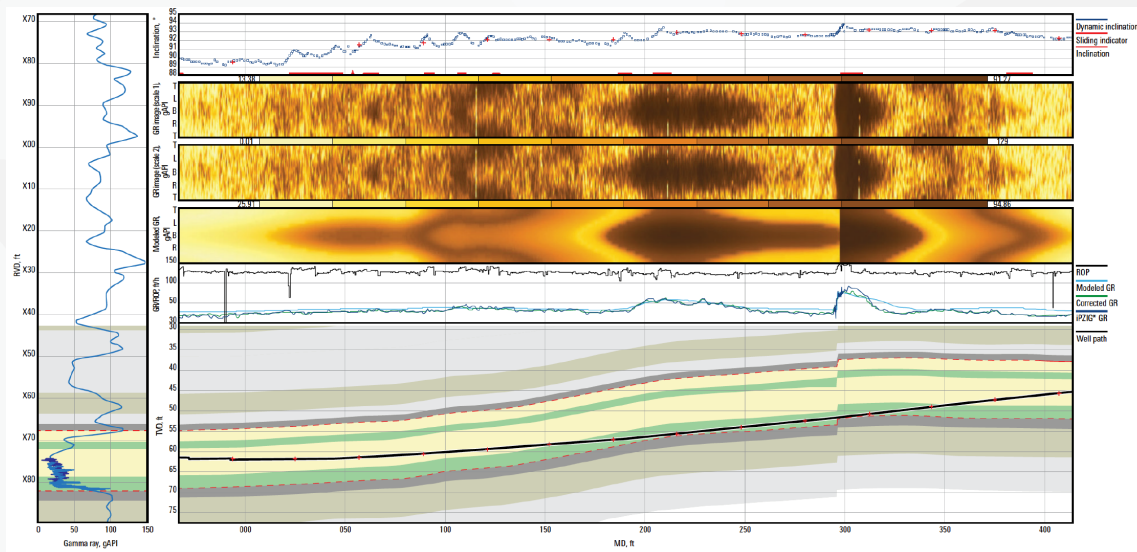
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MECHANICAL SPECIFICATIONS

Collar OD, in [cm]	4 3/4 [12.06]	6 3/4 [17.15]
GR Sensor Specifications		
Detector type	NaI scintillation	
Measurement range, † gAPI	0 to 1,200	
Accuracy	Greater of 2 gAPI or 5%	
Repeatability ‡	5%	
Environmental Specifications		
Max. vibration, gn [m/s ²]	20 [200] (rms, random, 5 to 1,000 Hz)	
Max. shock, gn [m/s ²]	500 [4,903.3]	

† Schlumberger GR measurements are calibrated to API standards and are highly repeatable, even in high-temperature environments.

‡ Standard 100-gAPI shale (2% K, 12-ppm Th, 6-ppm U); 18-s averaging.



GR imaging from the TelePacer platform guides steering decisions, provides dips, reveals faults, and helps improve in-zone percentage.