

Radian® Azimuthal Gamma-Ray and Inclination Service

COST-EFFECTIVE GEOSTEERING SOLUTION FOR UNCONVENTIONAL RESERVOIRS

OVERVIEW

Are you looking to increase barrels of production, while minimizing costs from your unconventional wells? Some formations contain natural gamma-ray signatures that are complex or exhibit little variation. This makes it difficult for conventional gamma-ray tools to stay within the reservoir, causing increased well time from costly sidetracks and decreased reservoir contact, resulting in fewer barrels. The Radian® Azimuthal Gamma-Ray and Inclination Service mitigates these geosteering challenges and provides real-time, high-quality gamma-ray images, thus enabling better geosteering decisions, accurate well placement, and maximum reservoir contact, helping maximize the value of your unconventional reservoir.

ENHANCE RESERVOIR UNDERSTANDING WITH HIGH-QUALITY GAMMA-RAY IMAGES

The Radian service utilizes four highly sensitive gamma-ray detectors arranged evenly around the circumference of the tool, allowing it to generate real-time azimuthal images, whether rotating or not, and providing more details of the reservoir structure. This gives operators enhanced reservoir understanding, enabling real-time geosteering decisions to accurately place the well in the target reservoir and to maximize reservoir contact. The optional inclinometer package continuously monitors the orientation of the well and helps minimize wellbore tortuosity. For maximum flexibility, the tool can be run as a stand-alone tool, or positioned anywhere in the bottom-hole assembly in combination with any Sperry Drilling measurement-while-drilling/logging-while-drilling (M/LWD) and directional-drilling services to suit a variety of applications.

With a clear view of the surrounding geology, combined with our technical expertise and reservoir insight, the Radian service can optimize the stratigraphic placement of laterals, maximizing reservoir contact and increasing hydrocarbon production.

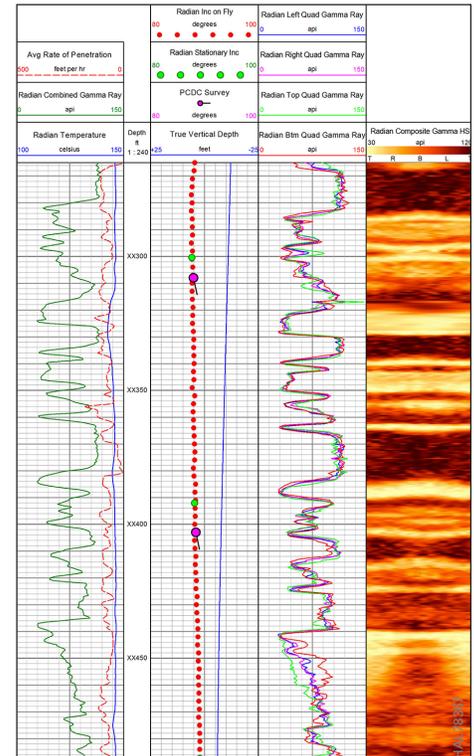
FEATURES

- » High detector sensitivity provides clear images and precise bulk gamma-ray measurements
- » Optional survey-quality inclination measurements
- » Compact, modular design is compatible with all Sperry Drilling M/LWD and directional drilling systems and telemetry types to suit a variety of applications
- » SOLAR® rating is available for operation up to 347°F (175°C) and 20,000 psi (138 MPa)

For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com

Sales of Halliburton products and services will be in accord solely with the terms and conditions contained in the contract between Halliburton and the customer that is applicable to the sale.

H013216 06/19 © 2019 Halliburton. All Rights Reserved.



Sample log from the Radian® service showing detailed trajectory and reservoir structure information

BENEFITS

Drill to Produce

- » Place wells accurately and maximize reservoir contact with a clear view of the surrounding geology while in rotating or sliding mode
- » Reduce uncertainty and optimize well placement by easily distinguishing between formation layers with low gamma-ray contrast

Enhance Reservoir Understanding

- » Increase well production by knowing the reservoir's characteristics and structure

Reduce Well Time

- » Decrease wellbore tortuosity by obtaining immediate feedback from the inclination measurements, making it easier to run casing and completion strings