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xBolt G2 Service Quadruples Data Transmission Rate and Improves Signal Reliability to Eliminate Relogging

Operator increases on-bottom drilling time by 25% in challenging conditions with quadrature phase shift key transmission method

CHALLENGE

- Improve drilling productivity by minimizing lost time due to poor survey data and slow transmission speeds.

SOLUTION

- Use the xBolt G2* accelerated drilling service with quadrature phase shift key (QPSK) mud pulse telemetry technology to improve signal strength and negate drilling noise while reliably transmitting MWD data at faster speeds.

RESULTS

- Quadrupled data transmission rate and eliminated relogging—contributing to a 25% increase in on-bottom drilling time.

Obtain reliable MWD data in challenging drilling conditions

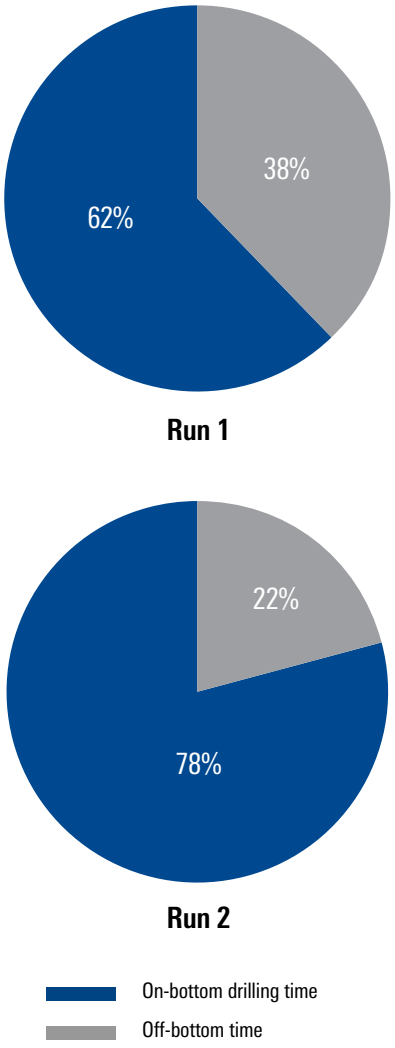
An operator wanted to save time and costs off AFE while drilling in the Midcontinent oil region. Due to drilling noise, particularly in unfavorable drilling conditions, the data from conventional tools could not be demodulated at surface. To obtain accurate formation evaluation and drilling optimization data during drilling operations, the operator often had to relog every stand of drillpipe—and even retake entire surveys. This led to hours of NPT per well.

Enable frequency shifts and higher transmission speeds

To increase data transmission speed and deliver a continuous MWD signal while drilling, Schlumberger recommended the xBolt G2 service. The xBolt G2 service uses quadrature phase shift key mud pulse telemetry, which enables increased bit rates and carrier frequency flexibility. System algorithms guide the mud pulse signal to change frequencies onto a cleaner area within the spectrum, avoiding insufficient data due to low-frequency drilling noise, which can cause very poor to no demodulation.

Saved time and costs off AFE by increasing on-bottom drilling time 25%

Using the xBolt G2 service, the operator significantly increased transmission reliability to eliminate the need for relogging and repeat surveys, which helped increase on-bottom drilling time from 62% to 78%. The xBolt G2 service achieved a 2-bps transmission rate during drilling compared with just 0.5 bps from a standard high-volume, probe-based mud pulse tool—reducing survey time by 2 minutes at every connection.



The xBolt G2 service with QPSK telemetry delivered 25% more on-bottom drilling time (blue) than a traditional MWD system.

*Mark of Schlumberger

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