Logging-While-Drilling

Quasar Pulse℠ M/LWD service saves customer approximately USD 1 Million with its capability to drill and log in to TD in a single run in extremely high temperature offshore wells

Location: South East Asia

Overview

An operator wanted to reduce costs and achieve logging objectives on high-temperature wells drilled from a jack up rig in 243 feet (74 meters) of water, offshore South East Asia, where bottomhole temperatures are among the highest in the world.

Past drilling practice for these extremely high-temperature wells has been to drill until standard logging-while-drilling (LWD) tools "temped out," and then to pick up a dumb iron assembly to drill to total depth (TD). This method of drilling resulted in real-time logging data loss and borehole positioning uncertainty. Another common practice was to extend tool runs as long as possible by employing temperature mitigation practices such as reducing RPM and circulating to cool the tools, but this increased the amount of rig time needed to drill the reservoir section.

CHALLENGES	SOLUTIONS	RESULTS
Deeper, hotter wells Wells are being drilled deeper than ever, increasing the number of tool runs that exceed the maximum temperature specifications of conventional high-temperature M/LWD tools.	**Tools designed for extreme temperatures** The Quasar Pulse℠ M/LWD service features high-temperature LWD sensors, and the AGS™ adjustable gauge stabilizer.	**Cost effective and reliable trajectory control** Halliburton solutions enabled hole sections to be drilled with one BHA while acquiring formation and evaluation data at up to 200°C.
Costly temperature mitigation efforts. Attempts to mitigate temperatures to extend runs result in increasing the time required to drill the section.	**High-temperature steerability** The AGS™ stabilizer allows changes in the build or drop tendencies of directional drilling assemblies in rotary mode without tripping to reposition stabilizers or change the gauge.	**Reduced rig time** Drilled casing point to well TD with one assembly. No trips required to change BHA configuration or decreased drilling capacity while mitigating for high temperature. Allows the operator the capability to drill more wells, thus increasing productivity and revenue.
High-temperature, high-cost well environment Any cost-effective solution requires LWD sensors that can drill and log to TD in a single run in directional, high–temperature, offshore wells.	**One-run LWD** Quasar Pulse M/LWD service has formation and evaluation data acquisition sensors that can withstand harsh and hot-hole environments.	**Improved decision making** Deeper, hotter reservoir sections are no longer drilled "blind" with dumb iron assemblies. Extreme temperature formation evaluation sensors enable real-time decision making.

In order to help the client prevent these costly measures, Sperry Drilling recommended using the Quasar Pulse℠ M/LWD service, which includes sensors capable of operating in the anticipated bottom-hole static temperature (BHST) of 383°F (195°C).

Quasar Pulse℠ M/LWD Service High-Temp Capability Reduces Trips and Drilling Time, Saving Approximately USD 1 Million

Sperry Drilling ran the Quasar Pulse M/LWD service with the AGS™ adjustable gauge stabilizer in five wells from the platform in South East Asia, and successfully drilled and logged in each section.

In one outstanding single-run performance where circulating temperature reached 369°F (187°C), the Quasar Pulse service with rotary AGS stabilizer drilled and logged 7,493 feet (2,284 meters) to TD at 12,946 feet (3,946 meters) for an average rate-of-penetration of 101.4 feet (31 meters) per hour.

After excellent performances in all five wells, the client calculated that using the Quasar Pulse M/LWD service from Sperry Drilling saved them approximately USD 1 million and over 100 hours of rig time by reducing the number of wireline runs, eliminating trips for “temped out” tools, and by not having to employ temperature mitigation practices to achieve TD.