

Magnus[®] RSS and Triple-Combo LWD Suite Combine to Drill and Log Well Section in 1 Run, Save 39 Hours of Rig Time

Objectives

- Drill and log the 8 1/2-in. section of a deviated well in a single run. The operator had often required more than one trip to drill previous 8 1/2-in. sections in the field because of high stick and slip, severe shock and vibration, and poor penetration rates.
- Avoid the risk of differential sticking during wireline runs in the depleted pore pressure reservoir.
- Run a 7-in. liner in the same 8 1/2-in. section as quickly as possible following completion of the drilled section.

Our Approach

- Past operations involved using a motorized bottomhole assembly (BHA) for drilling and, on a separate run, a wireline tool for logging. To drill and log the section at the same time, the Drilling Services team proposed using the Magnus rotary steerable system (RSS) along with a triple-combo logging-while-drilling (LWD) suite, including a gamma ray, resistivity, density, and neutron tool.
- For the first time globally, the team deployed the Magnus RSS and triple-combo suite as an integrated solution.
- With its fully rotating body, minimal BHA stabilization, proportional steering control system, and optimized junk slot area, the Magnus RSS reduced the possibility of stuck-pipe incidents and achieved optimal hole cleaning.
- Alongside the RSS, the LWD suite helped to minimize openhole exposure by logging the wellbore during drilling.
- The RSS reached an ROP as high as 27 ft/hr and drilled the 666-ft (203-m) section in a single run.

Value to Customer

- The Magnus RSS and triple-combo LWD suite enabled drilling and logging a deviated well section with zero issues in just one run. Following this success, the operator plans to follow a similar approach to avoid risks in other wells and deliver them ahead of plan.
- Combining the RSS with the triple-combo LWD suite eliminated the need to run wireline logs and the associated wiper trip, which would have been required. This combined approach provided high-quality formation evaluation logs in real-time while drilling to save the operator a total of 39 hours of rig time valued at US \$39,429.
- The RSS used proportional steering control to deliver a smooth wellbore profile, which resulted a clean trip and minimal drag when running the 7-in. liner to bottom.



The Magnus RSS and LWD suite combined to deliver flawless performance in a challenging well section.

LOCATION
Kuwait

WELL TYPE
Onshore, deviated, oil

FIELD
Umm Gudair

HOLE SIZE AND ANGLE
8-1/2 in., 45°

LINER SIZE AND TYPE
7 in.

FOOTAGE DRILLED
666 ft (203 m)

DRILLING TIME
25 hours

PRODUCTS/SERVICES

- Magnus RSS
- Triple-combo LWD suite
 - HEL[™] MWD system
 - MFR[™] multi-frequency resistivity sensor
 - AZD[®] azimuthal density sensor
 - TNP[™] thermal neutron porosity sensor

