Compact™ Well Shuttle Acquires Wireline Openhole Data From 28,067 ft TD (MD), With 23,000-ft Horizontal Section, Sets New Industry Records

Objectives

- Obtain high-resolution petrophysical data, including cross-dipole sonic, 8-arm caliper, and gamma ray in a single run for an extended-reach well.
- Overcome drag and buckling challenges through drillpipe rotation at high speeds (approximately 80 rpm).
- Ensure a safe and successful job execution, and prevent drilling challenges including total losses, high gas-oil ratio, and hydrogen sulfide.

Our Approach

- The Compact well shuttle conveyance housed the Compact logging tools inside the drillpipe to fully protect them during tripping in and deployed them into the open hole after reaching total depth.
- The technology is especially effective as the shuttle enables rotation, reciprocation, and circulation of the drillpipe, as needed, to accommodate specific well conditions, and maintains full well control, even in cases of total fluid loss.
- A drillpipe swivel was run in the pipe string above the Compact well shuttle bottomhole assembly to reach deeper reservoirs by allowing safe rotation at high speeds (up to 80 rpm), and to eliminate frictional and buckling effect while running in the hole.
- The Compact well shuttle circulated fluid through the bottom of the BHA when running in the hole and enabled pressure pulses to lock the swivel and rotate the drillstring completely to challenge any potential stuck pipe.

Value to Customer

- The Weatherford Compact well shuttle, integrated with a drillpipe swivel in the drillpipe string, enabled the operator to log an extended-reach well with a measured depth of 28,067 ft (8,554 m) and a true vertical depth of 4,619 ft (1,407 m), using Compact wireline tools.
- Weatherford logging technology delivered a high-resolution mechanical 8-arm caliper log and a 3D well profile, both of which could not be obtained with conventional LWD tools. This data proved crucial for executing the subsequent completion program.
- The wireline cross-dipole sonic data was acquired at a lower cost compared to traditional LWD sonic data, providing critical insights into formation anisotropy, mechanical properties, and shear wave propagation directions.

The Compact memory logging system obtains wireline-quality data without the need for wireline in the well.

OPERATOR
Saudi Aramco

LOCATION
Saudi Arabia

WELL TYPE
Onshore, horizontal, extended-reach

HOLE SIZE AND ANGLE
8-1/2 in., 90°

CASING SIZE/DEPTH
9-5/8 in., 47 lb/ft
MD: 18,756 ft MD (5,716 m)
TVD: 4,545 ft TVD (1,385 m)

TEMPERATURE
196°F (91.1°C)

MEASURED DEPTH
28,067 ft (8,554 m)

TRUE VERTICAL DEPTH
4,619 ft (1,407 m)

HORIZONTAL SECTION
23,000 ft (7,010 m)

OPENHOLE LOGGING INTERVAL
9,350 ft (2,849 m)

PRODUCTS/SERVICES
- Compact Well Shuttle
- Cross-dipole sonic (CXD) tool
- 8-arm caliper
- Gamma ray tool

Weatherford®