Victus™ Intelligent MPD Allows Operator to Combine Two Hole Sections, Eliminating Contingency Liner String in Unconventional Gas Reservoir

Objectives

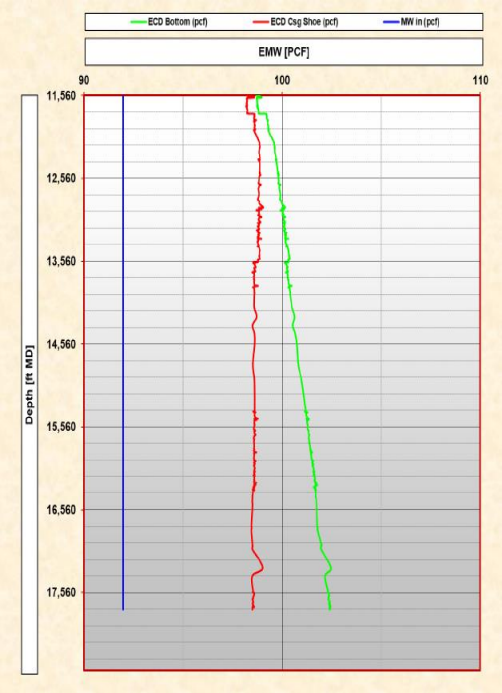
- Maintain a constant bottomhole pressure (CBHP) with a lighter mud density to drill several formations with a variant pressure regime in a zone with neighboring fracking activity.
- Navigate through a drilling window without the need to halt drilling before reaching the section total depth (TD) and running a contingency liner string.

Our Approach

- While conventionally drilling similar wells in the field, the operator had to separate two challenging sections by running a 7-in. liner to cover the first formation and drilling a 5 7/8-in. lateral section.
- The managed pressure drilling (MPD) team suggested using a lighter mud density while drilling the 8 1/2-in. section, maintaining constant bottomhole pressure while the well was monitored for kicks and losses.
- The bottomhole pressure was controlled to avoid high overbalance and induced losses using MPD techniques to instantaneously respond to well behavior without the need to increase the mud density.
- Engineers optimized the killing operation and mitigated overkilling challenges by evaluating the well during drilling operations.

Value to Customer

- The well was successfully drilled to TD, avoiding kicks and losses.
- By using MPD, the operator eliminated the need to run a contingency 7-in. liner, a technique often used in conventional operations.
- The use of a CBHP and lighter mud density allowed the selection of the optimum trip mud density, preventing losses and ballooning effect problems.
- Across the 13 wells of this operation, the application of MPD techniques saved the operator $450,000 USD per well, equating to an approximate value of $5.85 million USD for the entire campaign.



The figure above shows the trends for the pressure at the casing shoe (red line) and the pressure at the bottom (green line). The anchor point for the pressure control was set at the casing shoe (blue line) and it was kept constant to minimize the excessive overbalance typically observed in conventional operations.

LOCATION
Onshore Middle East

WELL TYPE
Horizontal, unconventional gas reservoir

FORMATION TYPE
Tight sandstone

HOLE SIZE
8-1/2 in.

PRESSURE
100 to 105 lb/ft^3 (1,603 to 1,681 kg/m^3)

DEPTH
7,400 to 17,400 ft (2,255 to 5,303 m)

PRODUCTS/SERVICES
- Managed pressure drilling services
- Victus intelligent MPD
- RCD Model 7100

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