UNCONVENTIONALS

CASE STUDY

RED-X™ Single-Piece Centralizers Improve Casing Run Efficiencies in Difficult Well Conditions

ONE CENTRALIZER PER CASING JOINT HELPS OPERATOR SET NEW CASING RUN SPEED RECORD

DUNCAN FIELD CAMP

CHALLENGE

Solve operator's difficulties in achieving total depth in an unconventional well that included an exceptionally long lateral and 18°–19° dogleg sections

SOLUTION

- Modeling of three different centralization solutions based on RED-X™ single-piece centralizers to determine the optimal solution
- Execution of optimal solution, which was identified as one centralizer per joint for a total of 194 centralizers from total depth to top of curve

RESULTS

- Casing successfully navigated 18°–19° doglegs and was run straight to bottom without any washing or reaming
- One centralizer per casing joint enabled an 85 percent standoff at the centralizer
- Casing run speed exceeded the operator's previous record by 350 feet/hour (106.7 meters/hour), delivering casing to total depth 12 hours faster than the previous record

ESTIMATED COST SAVINGS UP TO
USD 10,000

OVERVIEW

Running casing to target depth in unconventional wells with deviated sections can introduce significant torque and drag complications. These cost-challenged projects emphasize speed and efficiency when drilling and completing the well, and slow casing runs can negatively impact overall profitability of the job. Additionally, casing standoff is often considered a lower priority due to the frac completions of the well designs. Some operators choose to run casing without centralization in order to navigate tight sections and save costs.

CHALLENGE

An operator in the U.S. had anticipated that it would be difficult to achieve total depth on an unconventional well. The well plan included the longest lateral section that the operator had ever drilled, and 18°–19° doglegs indicated multiple tight spots in which to navigate casing. Historically, the operator had not run centralization in the area due to concerns about costs and potential drag in dogleg sections. However, the length of the lateral brought increased risk of poor cement coverage, so the operator placed a high priority on maximizing standoff to achieve more reliable barriers.

SOLUTION

To enable the operator to maximize standoff, Halliburton modeled three different centralization solutions based on RED-X™ single-piece centralizers. The single-piece design was chosen for its high restoring force and minimal drag signature. Simulations were conducted with one centralizer per three casing joints, one centralizer per two joints, and one centralizer per joint. The optimal solution for the project was identified as one centralizer per joint for a total of 194 centralizers from total depth to top of curve. This offered the desired standoff for pay zone completions while still being cost effective. The RED-X single-piece centralizers also helped reduce drag in deviated areas and minimized washing and reaming joints.

RED-X™ Single-Piece Centralizer

RESULTS

RED-X centralizers helped improve casing run efficiency for the operator in these challenging well conditions. The casing was able to navigate the 18°–19° doglegs without any concerns, and was run straight to bottom without any washing or reaming. The single-piece design of the RED-X centralizers required zero running force and allowed a one centralizer per joint solution, enabling 85 percent standoff at the centralizer. Casing run speed exceeded the operator's previous record by 350 feet/hour (106.7 meters/hour), delivering casing to total depth 12 hours faster than the previous record. The rig time savings exceeded the cost of the centralizers for a net savings of USD 10,000, and the operator has chosen to continue running RED-X centralizers.

HALLIBURTON