

# Renegade Friction-Reduction Tool

Extends Reach of Coiled-Tubing Beyond Predicted Lockup Depth in 90° Well, Saves Operator \$100,000

## Objectives

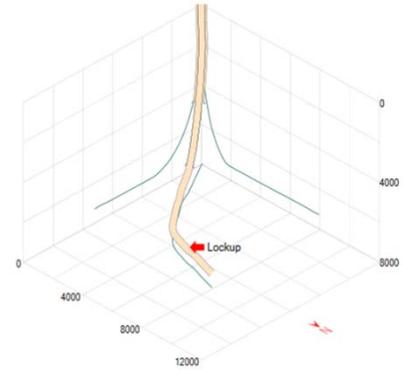
- Run coiled tubing (CT) through highly deviated well to reach TD.
- Mill out a ceramic disc and displace oil-base mud with calcium-chloride brine to enable completion operations to begin.

## Our Approach

- Weatherford thru-tubing specialists conducted a thorough well analysis. Simulations using a directional survey to model the wellbore showed that a standard CT milling BHA would lock up at a depth of 14,010 ft, well before reaching TD at 16,500 ft. To overcome this problem, the team recommended the Renegade friction-reduction tool. This technology features frequency and amplitude pulses that cause axial movement along the CT string, which helps to eliminate helical buckling and reduce excessive drag in horizontal wells.
- Weatherford crews deployed to the rig and rigged up a tapered mill, along with an eCTD™ positive displacement motor and Renegade friction reduction tool. The team ran the tools downhole, milled out a ceramic disk, and attained target depth, before displacing oil-based drilling fluid from the open-hole section.
- The job was completed without nonproductive time (NPT) or near misses.

## Value to Customer

- The Weatherford team achieved all operator objectives in a single run, which enabled the customer to save at least 8 hours of rig time, valued at US\$100,000.
- The Weatherford Renegade friction-reduction tool and tapered mill enabled the operator to stay on plan and safely reach TD to displace drilling fluid with brine.
- By offering efficient, economical alternatives to conventional workovers, Weatherford thru-tubing services was able to help the operator avoid other cost-prohibitive procedures.



Coiled tubing simulation based on deviation survey data revealed that, without the Renegade friction-reduction tool, lockup would occur 2,500 ft (762 m) short of planned depth.

### LOCATION

Saudi Arabia

### WELL TYPE

Oil producer

### DEPTH

16,600 ft (5,060 m)

### DEVIATION

90°

### TUBING SIZE

4-1/2-in. 12.60 lb-ft L-80

### PRODUCTS/SERVICES

- Coiled tubing conveyed eCTD™ 2.875-in. positive-displacement motor
- Coiled tubing conveyed 2.875-in. Renegade friction-reduction tool
- Coiled tubing conveyed 3.25-in. tapered mill

