

Two-Stage Cementing Operation Sets Long Liner in Sensitive Formation in One Run With Zero NPT

Objectives

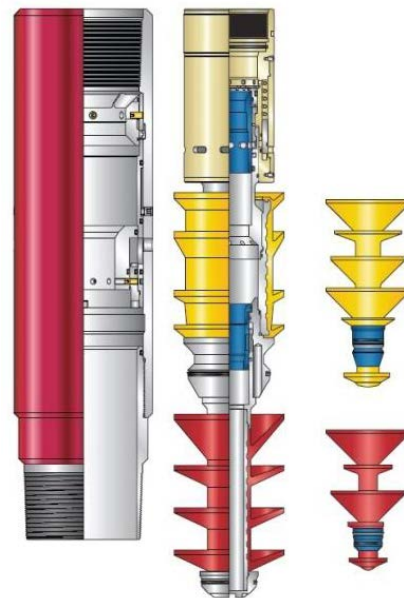
- Set a 2,602-ft (793-m) long liner at total depth in a 45° deviated wellbore.
- Manage annular hydrostatic pressure while cementing the liner to mitigate the risk of formation damage in the sensitive sandstone production zone.

Our Approach

- Weatherford deployed a 7-in., two-stage, premium hydraulic-rotating (PHR) liner hanger with a hydraulic stage tool, liner-top packer, and reamer shoe. The reamer shoe enabled the liner string to overcome the wellbore deviation and reach a setting depth of 10,650 ft (3,246 m).
- After setting the liner, the team dropped a setting ball into a proprietary mechanical ball seat to release the HNG hydraulic-release running tool. An energy absorption tool protected the systems from abrupt fluid pressures created by the shearing of the mechanical ball seat.
- An 854BS plug set displaced the first stage of cement and created a pressure chamber at the landing collar, which isolated the formation from increased hydrostatic pressures.
- After the required 20-hour waiting period, the second stage was cemented and Weatherford closed the stage tool.
- The cementing operation was completed in a single run with zero nonproductive time (NPT), recordable incidents, or operational hazards.

Value to Client

- The reamer shoe enabled the operator to ream the 2,062-ft (793-m) liner to the desired setting depth despite the deviation.
- By isolating the formation from annular hydrostatic pressure during cementing, the hydraulic stage tool enabled the well to be completed without incurring losses or creating unwanted formation fractures.



The Weatherford hydraulic stage tool enables weak formations to be isolated from hydrostatic pressure during cementing, which mitigates formation damage.

LOCATION

Egypt

WELL TYPE

Onshore, oil producer

FORMATION

Sandstone

HOLE SIZE AND ANGLE

8.5 in., 45°

CASING TYPE AND SIZE

9.625 in., 53.5 lb/ft, P-110 BTC

LINER TYPE AND SIZE

- 7 in., 29 lb/ft, L-80 BTC
- 7 in., 32 lb/ft, P-110 BTC
- 7 in., 26 lb/ft, L-80 BTC
- 7.625 in., 47.1 lb/ft, NT-140

SETTING DEPTH

10,650 ft (3,246 m)

PRODUCTS/SERVICES

- Polished bore receptacle
- Liner-top packer
- Premium hydraulic-rotating liner hanger (WPHR)
- Model 754PD hydraulic stage tool with 854BS liner plug set
- HNG running tool
- Mechanical ball seat
- Energy absorption tool
- Reamer shoe

