

DiamondBack Reamer Shoe System and WTSP4R3 Packer Secure Liner-Top Integrity in Tight-Gas Well

Objectives

- Install a liner at a setting depth of 11,648 ft (3,550 m) in a high-pressure, high-temperature (HPHT), tight-gas development well. During previous attempts to set the liner, another service provider was unable to get the liner to pass through restrictions to reach setting depth.
- Maintain the ability to rotate the casing string and to ream through tight spots.
- Cement the liner and form a reliable seal between the liner and the host casing.

Our Approach

- Weatherford ran 7-in. liner to the setting depth without incurring any nonproductive time (NPT). The liner-hanger assembly included a DiamondBack reamer shoe system, which guided the liner through the wellbore and reamed through tight spots as needed.
- Next, Weatherford deployed a liner wiper plug (LWP) to maintain fluid separation and a landing collar with a ball seat to provide a pressure-tight chamber for the hydraulic running tools.
- A mechanical rotating packer actuator, deployed above a WTSP4R3 liner-top packer, applied 56,000 lbf (249,100 N) of force to set the packer.
- The WTSP4R3 liner-top packer effectively isolated the cement and provided a gas-tight seal to prevent gas migration and flow while the cement set.
- Weatherford performed a pressure test and verified well integrity.
- The entire operation was completed with zero safety incidents, zero environmental incidents, and zero NPT.

Value to Client

- The DiamondBack reamer shoe system enabled the liner to pass through tight spots and restrictions and to land at setting depth without incurring any NPT.
- By creating a reliable, gas-tight seal between the liner and the host casing, the WTSP4R3 liner-top packer enhanced well integrity and helped to prevent gas migration.



The Weatherford premium hydraulic-rotating liner hanger enables rotation of the liner during cementing operations, which improves the quality of the cement bond.

LOCATION
Oman

WELL TYPE
Tight gas, development, HPHT

FIELD
Burhan

HOLE SIZE
8.375 in.

CASING TYPE AND SIZE
9.625 in., 53.5 lb/ft

LINER TYPE AND SIZE
7 in., 35 lb/ft

SETTING DEPTH
11,648 ft (3,550 m)

- PRODUCTS/SERVICES**
- SwageSet tieback polished bore receptacle
 - WTSP4R3 liner-top packer
 - Premium hydraulic-rotating liner hanger (WPHR)
 - Liner wiper plug (LWP)
 - WFJB debris barrier
 - DiamondBack reamer shoe system

