



# Weatherford®

## REAL RESULTS

### BlackCat Retrievable Sealbore Packer Enables Rigless Installation of Velocity String and Saves \$200,000 Per Future Intervention

#### Objectives

- Restore production to optimal levels in a well with a fluid velocity that was lower than the critical gas velocity. The operator had been injecting nitrogen into the wellbore—which cost nearly US \$200,000 per intervention and required monthly well service for unloading—and wanted to identify a more cost-effective and permanent solution for removing water that had accumulated at the bottom of the well.
- Maintain the integrity of a tubing-retrievable subsurface safety valve (TRSSV) installed at 286 ft (87 m). The TRSSV had an outside diameter of 7 in. (177.8 mm) and an inside diameter of 5.95 in. (151.3 mm).

#### Our Approach

- Weatherford used a coiled-tubing (CT) unit to set a BlackCat retrievable sealbore packer at 308 ft (94 m) and to hang 2-in. CT that would serve as a velocity string. This operation was the first time in Colombia that a service company installed a velocity string without using a workover rig.
- With a maximum outside diameter of 5.89 in., the packer passed through the TRSSV without damaging it and maintained well integrity.
- The CT maintained current flow rates while restricting the flow path. As a result, fluid velocity increased and fluid accumulation at the bottom of the well was eliminated.

#### Value to Client

- The installation of the BlackCat packer and velocity string solved fluid-loading problems permanently, which will save approximately US \$200,000 per future intervention.
- The operation eliminated the nonproductive time associated with monthly well service to unload nitrogen.
- After the intervention, production restarted at pre-intervention levels of 257 BPD (40.9 m<sup>3</sup>/d).

Weatherford used the BlackCat retrievable sealbore packer to provide a permanent, less costly, and rigless solution for hanging a velocity string that removed accumulated fluids at the bottom of a well.

**Location**  
Colombia

**Formation Type**  
Sandstone

**Well Type**  
Onshore, vertical, oil and gas

**Production Casing**  
7 in., 32 lb/ft  
(177.8 mm, 47.6 kg/m)

**Total Depth**  
17,403 ft (5,304 m)

**Total Vertical Depth**  
16,800 ft (5,121 m)

**Maximum Temperature**  
280°F (137.8 °C)

**Maximum Pressure**  
3,000 psi (20.7 MPa)

**Production Rate**  
257 BPD (40.9 m<sup>3</sup>/d)

#### Products/Services

- 7- x 4-in., 29 to 35 lb/ft, 13Cr. BlackCat retrievable sealbore packer
- 7-in. BlackCat packer GP service seal
- 7-in. BlackCat adapter kit
- Crossover: 5 1/2-in. 8 Stub Acme pin x 5 1/2-in. LTC box 13 Cr.
- Crossover: 3 1/2-in. EUE pin x 5 1/2-in. LTC box
- Mill-out extension: 5 1/2-in. LTC pin x pin 13Cr.
- Coiled-tubing external connector:  
2 7/8- x 3 1/2-in. EUE box



For more information:  
<http://www.weatherford.com/contact-us>