

# **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 unloadingand 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

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

bottom of a well.

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