

# PCP Model 16-3000

## Operates Trouble-Free for 10 Years, Saves \$57,251 in Intervention Costs

### Objectives

- Reduce operating costs through the installation of a reliable progressing cavity pumping (PCP) system in a heavy oil well located inside a nature preserve. The well has fluid viscosities that range from 3,000 cP downhole to 2,000,000 cP at the surface and temperatures that range from 59° to 95°F (15° to 35°C).
- Meet regulatory standards for noise and surface equipment profile.

### Our Approach

- Following an artificial lift system analysis, Weatherford recommended installation of a Model 16-3000 PCP system manufactured with hydrogenated nitrile butadiene rubber (HNBR) elastomer. This model can overcome the high tubing flow losses between the deep PCP landing zone and the surface, and the HNBR elastomer is compatible with the reservoir fluids.
- Inherently quiet, the PCP system required no modification to meet noise regulations for the nature preserve. To meet visual standards, the team painted the surface equipment to blend in with the environment.
- Once installed at the site, the system began pumping at the expected rate of 105.4 B/D. It continued at that production rate without intervention for 3,621 days. After operating for just 29 days short of 10 years, the well was serviced to replace a broken sucker rod.

### Value to Client

- The Weatherford PCP Model 16-3000 reduced operating costs by providing nearly 10 years of continuous operation with no intervention. The expected intervention-free run life of PCP wells in the area is 600 days, and the average annual workover spend is US \$5,770. Use of the Model 16-3000 saved the operator approximately US \$57,251 in intervention costs over the 10-year life of the PCP system.
- The PCP system provided excellent reliability. While in operation, the system produced 380,000 barrels of oil and accumulated more than 500 million revolutions. Because of the age of the system, the client requested a preventive replacement of the PC pump. For research value, Weatherford conducted a laboratory analysis of the 10-year-old PC pump. They found that, despite 3,621 days of continuous operation, the pump and elastomer were well within operational specification.
- The system met all visual and noise environmental regulations for operating inside the nature preserve.



The Weatherford Model 16-3000 PCP system produced heavy oil for 3,621 days without an intervention.

#### LOCATION

Llancanelo Field, Argentina

#### WELL TYPE

Horizontal heavy oil

#### PUMPING DEPTH

2,957 ft (901 m)

#### FLUID FLOW RATE AND TYPE

12° API oil at 105.4 B/D

#### CASING SIZE

7-in. 23 lb/ft

#### TUBING SIZE

3 1/2-in. 9.3 lb/ft

#### ROD STRING SIZE

1-in. API Grade D

#### HOLE ANGLE AT PUMP DEPTH

60° inclination

#### PRODUCTS/SERVICES

- PCP Model 16-3000
- Mini-G drive head

