



Weatherford®

REAL RESULTS

Metal Lock™ Progressing Cavity Pump Increases Run Life 300%, Reducing Downtime and Rig Costs

Objectives

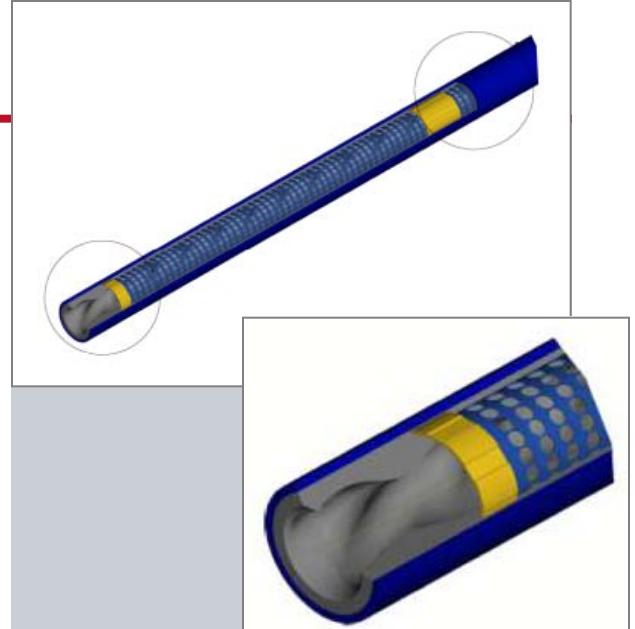
- Provide an alternative solution to producing extra-heavy oil. In this Colombia well, the combination of high temperature and high water cut was beyond the application envelope of conventional progressing cavity pumps (PCPs) that feature standard bonding systems. The run life of electric submersible pumping (ESP) systems in this well had been, in some cases, less than 40 days.

Results

- Weatherford installed the *Metal Lock* PCP with an HNBR elastomer to improve reliability and performance in this challenging application.
- The system started running at 200 rpm and operated for more than 300 days without failure—more than three times the average operating life of the ESP systems in this area. The pump was retrieved for external reasons; however, it was still in favorable operating condition.
- The *Metal Lock* PCP showed stable operational conditions with a volumetric efficiency of around 90%. This behavior indicates that the interaction between fluid and elastomer reached the proper equilibrium without causing damage to the stator material or excessive torque on the pump.
- The installed power for the *Metal Lock* PCP was only 100 HP, 44% lower than that for the original ESP system (180 HP).

Value to Client

- By optimizing design to enhance well efficiency, Weatherford provided the following associated benefits to the client: extended pump life (from an average of 90 days to more than 300 days), reduced well servicing and pump replacement costs, lower operating costs, reduced nonproductive time, and increased economic return.
- In addition, the higher efficiency achieved with the *Metal Lock* PCP led to a 44% reduction in power consumption.



The *Metal Lock* PCP combines mechanical and chemical bonding, using an internal screen which provides superior anchoring between elastomer and tube.

Location

Llanos basin, Colombia

Well Type

Oil producer

Pump Setting Depth

7,062 ft (2,152 m)

Products/Services

- Artificial-lift services
- *Metal Lock* PCP
- HNBR elastomer

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