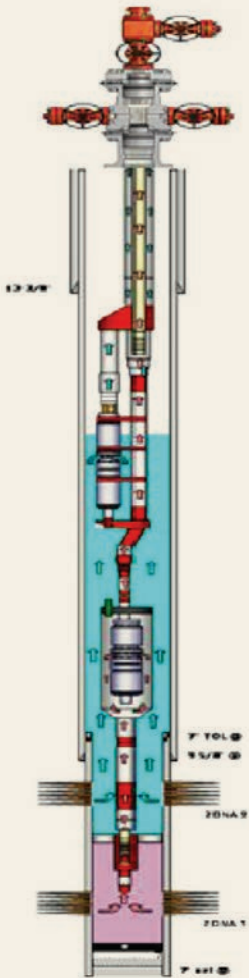


Parallel production via single wellbore maximizes economic and production performance

Dual completion ESP solution



An operator in Ecuador has achieved significant increased production with an Alkhorayef Electrical Submersible Pump (ESP) system that allows parallel production from two reservoirs through a single wellbore.

Environmental and economic considerations challenged Alkhorayef to find an innovative solution that would minimize drilling costs whilst maximizing the financial performance of the reservoir. Alkhorayef designed a robust dual ESP system to produce from two oil bearing zones that would ordinarily require two wellbores to be drilled and completed.

The upper ESP system sits beneath a Y-tool with bypass tubing connecting the encapsulated lower ESP which stabs into the packer to allow production from the lower zone.

Both systems operate independently and were sized according to the inflow characteristics of their respective reservoirs.

The Alkhorayef solution successfully met the operator's requirement to maximize the economic performance of the project whilst reducing the impact of exploration. Production increased by approximately 500 BPD.

ECUADOR



SOLUTION

- Dual zone production – double production from single wellbore
- Single wellbore, reduced drilling costs
- Minimized environmental impact in heavily forested area
- Increased recovery from reservoir
- Improved ROI
- Two ESPs reduce costs associated with deferred production

Upper ESP:

- Tandem 400 Series pumps
- Tandem seal section
- 550 Series 200HP motor

Lower ESP:

- Tandem 400 Series pumps
- Tandem seal section
- 450 Series 120HP motor

BACKGROUND

- Remote, forested area
- Project validity demanded innovative solutions to protect environment & maximize ROI
- Maximum DLS >1° per 100'

RESULTS

- Fewer wells drilled, reduced drilling costs
- Dual ESP with Y-tool and ESP pod
- ESPs spaced 300' apart to allow for smooth installation of completion
- Three leg packer penetrator for increased reliability