

Offshore Mexico

Dual ESP system overcomes offshore challenges in Mexico

Innovative installation delivers record production and real-time optimization in high-deviation well

CHALLENGE

- 75° deviation and 3.5° dogleg severity
- 0.1 in. running clearance
- High gas volume and flow rate
- Offshore power interruption risk
- Need for remote production visibility

SOLUTION

- Dual-stacked ESP with custom dual Y-tool
- Hydro-Helical® gas separator (98% gas handling)
- Dual ESP packer with gas venting
- Inteleview® digital platform for real-time monitoring

RESULT

- Achieved record production rate
- Overcame contingency start-up conditions
- Met offshore logistics and HSE requirements
- Enabled continuous optimization via Inteleview platform

Overview

An operator in Mexico required a high-performance electric submersible pump (ESP) system for a challenging offshore well. The well profile included a 75° deviation and 3.5° dogleg severity, with only 0.1 in. of running clearance. The operator also faced offshore constraints such as potential power interruptions and limited space for equipment deployment. The objective centered on achieving high flow rates and managing high gas volumes while maintaining continuous production visibility and control. To meet these demands, the operator partnered with Halliburton's Summit ESP® team to deliver a compact, dual ESP system with advanced gas separation and digital monitoring capabilities.

Challenge

The offshore environment introduced multiple technical and operational constraints. The well's high deviation and dogleg severity increased the risk of equipment damage during deployment. The narrow clearance between the casing and the ESP system required a custom solution to ensure proper fit and function. High gas content in the production stream threatened ESP performance, and the risk of power interruptions offshore added further complexity. The operator also needed a reliable method to monitor and optimize production remotely, from start-up through sustained operation.



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Solution

Halliburton assembled a cross-functional team of design, application engineering, and project management experts to address the operator's requirements. The team conducted a full-scope evaluation that included design, manufacturing, offshore installation, start-up, and monitoring.

The solution featured a dual-stacked ESP system, the first of its kind offshore Mexico, equipped with a custom dual Y-tool to accommodate the tight clearance. A dual ESP packer with gas venting capabilities supported system reliability, while the patented Hydro-Helical gas separator enabled the system to manage up to 98% free gas by volume.



Preparing to install the dual ESP system with two motor lead extensions

To meet contract requirements, Halliburton expanded its local facilities within nine months. These upgrades added full testing and disassembly capabilities, allowing the team to complete a full system integration test (SIT) before deployment. The operator observed all critical manufacturing and fit-up tests to confirm equipment readiness.

Halliburton also implemented a structured well review process to validate offshore procedures and capture lessons learned. To support ongoing performance, the Intelevate digital platform provided real-time surveillance, well performance reviews, and custom alarm configurations accessible to both the operator and the Intelevate platform team.

Result

The dual ESP system achieved a safe, on-time installation and delivered a record production rate for the operator. The compact configuration, enabled by the dual Y-tool and Hydro-Helical gas separator, allowed the system to land and start under contingency conditions.

Halliburton met all offshore logistics, operational, and HSE requirements while adapting to changes in start-up power availability. The expanded local infrastructure supported full system testing and disassembly, ensuring operational readiness. Real-time monitoring through the Intelevate platform continues to enhance system performance. Weekly health checks, monthly operations reviews, and secure mobile access provide the operator with actionable insights and continuous optimization.

This project set a new benchmark for offshore ESP deployment in Mexico and demonstrated the value of integrated technology and service execution in complex offshore environments.

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