CASE STUDY

HALLIBURTON

Ecuador

Intelevate™ well manager system monitors multiple wells with a single Edge device

Digital SCADA solution for remote areas within the Amazon jungle

CHALLENGE

Operating ESPs on wells in the Amazon jungle is challenging due to their remote location and the absence of a dedicated SCADA system for monitoring and optimization

SOLUTION

Intelevate Well Manager System Edge device and Intelevate's fourth-generation SCADA platform are combined hardware and software solutions that can monitor and optimize numerous ESP-lifted wells with a dedicated online web application

RESULT

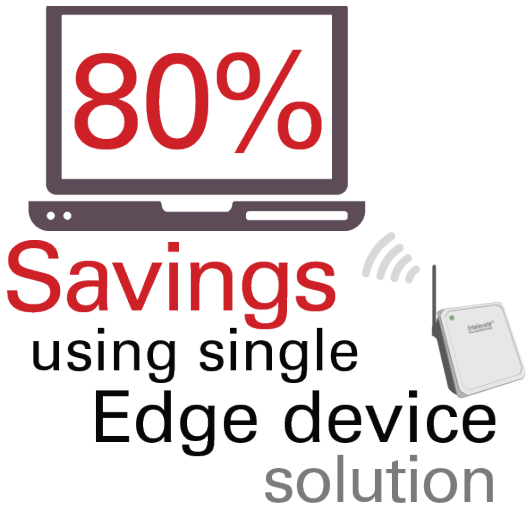
- 80% reduction in field on-site monitoring operating costs
- 74% reduction in capital utilizing the single Edge device solution for all wells within the pad
- 67% reduction in production deferment for high-potential wells with the ability to make faster data-driven decisions
- Reduced HSE hazards and environmental impact with limited field personnel present

Overview

Without a dedicated SCADA system for real-time monitoring and optimization, wells in remote areas of the Amazon jungle, produced with electric submersible pump (ESP) systems, require frequent trips by field technicians to check and optimize the equipment.

Challenge

A system capable of scheduling automatic reports and running recurrent KPI metrics is essential to maximize asset value and optimize pump performance in real-time. However, locally developed SCADA production monitoring systems often provide only basic, low-resolution data visualization and typically need more remote control capabilities. Developing a real-time SCADA platform specifically for ESP operations could take years and involve extensive internal processes, potentially delaying improvements in field uptime and equipment lifespan. Additionally, operators needed to digitalize multiple wells within the same pad using a single Edge device to ensure the project's economic viability.



SUMMIT ESP

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Solution

A reliable platform, accessible via web or mobile devices, is essential for providing timely alarms and maintaining production conditions and field uptime. Intelevate™ Well Manager System Edge device and Intelevate fourth-generation SCADA platform is a combined hardware and software solution that can commission up to 20 wells per pad, integrating all variable speed drives (VSD), surface sensor panels, and passive and active analog inputs into a single intelligent monitoring hardware. It ensures local storage of well information and automatic transmission to the web server during signal intermittence, preventing data loss.

The system also supports installing and integrating wireless sensor signals for tubing, casing, and flowline pressures and temperatures. Enhanced data reporting capabilities, such as Report by Exception, allow for monitoring on-site and remote changes to drive settings and capturing high-resolution data up to every second during abnormal events (smart alarms). Additionally, it provides a live view of remote ESP controls and observed changes, as displayed on the VSDs HMI.

Result

This solution allowed the operator to continuously monitor field uptime and remotely control ESPs during abnormal events caused by gas, sand, and low production. It improved nodal analysis input with real-time high-resolution data from wireless sensors. It enabled remote actions to prevent recurring shutdowns while operating ESPs within the recommended design range. Data was collected and stored using Intelevate field network communication servers, ensuring no data loss during signal interruptions.

Operators could take live remote control of the ESP with high-resolution visualization (<1 min) to optimize VSD operating modes and schedule alarms based on operating parameter limits. This solution provided data visualization at resolutions lower than 10 minutes compared to in-house SCADA systems. It allowed for one-click uptime and performance reports.

The monitoring solution reduced operational costs of well field trips by 80%, limiting mobilization to only necessary wells and optimizing technical and driving personnel availability from an average of five to one trip per month.

Capital investment costs for monitoring hardware were reduced by 74% by commissioning all wells to a single Intelevate Well Manager System. This platform facilitated faster well troubleshooting, better prioritization of field trips, and reduced production deferment by up to 67% in high-potential wells. It also enabled comprehensive data collection for historical trend analysis, operating mode optimization, real-time troubleshooting, reliability analysis, proactive alarm notifications, and corrective actions. Additionally, it minimized local troubleshooting and technical visits, reducing risks associated with environmental conditions.