

Lift IQ Service Remote Interventions Deliver 91% ESP Uptime in the Permian Basin

Surveillance and optimization avert 1,800 bbl of deferred oil production and 800 hours of field service in just 3 months

CHALLENGE

Reduce frequency of field visits to remote wells while maintaining or improving ESP system uptime in the Permian Basin.

SOLUTION

Monitor and control wells using the Lift IQ* production life cycle management service.

RESULTS

- Achieved 91% ESP uptime in wells protected with 24/7 surveillance and remote interventions, compared with 57% uptime in wells monitored with data visualization alone.
- Avoided 1,800 bbl of deferred oil production and eliminated 800 hours of field service in 3 months—a total value of approximately USD 206,000.



Frequent ESP stoppages are common in unconventional play

With about 365 ESP wells in the Permian Basin, an operator has long experience with the challenges of maintaining oil production in unconventional wells. Company engineers are accustomed to frequent ESP downtime caused by issues such as power shortages, gas lock, insufficient speed, and stuck pumps.

For ESP events involving high temperatures, vibration, electrical load, or a combination of these factors, rapid intervention is critical to reduce stress on ESP components and maintain the system’s run life. When shutdown is necessitated by flowline or production concerns, stopping the ESP as soon as practicable is necessary for minimizing the undesirable operating period. However, mobilizing field service personnel to the remote wells (100 to 180 miles from the nearest field service experts) incurs risks and takes time—about 7 hours per event. Even for planned shutdowns, service hours and deferred production can accumulate rapidly.

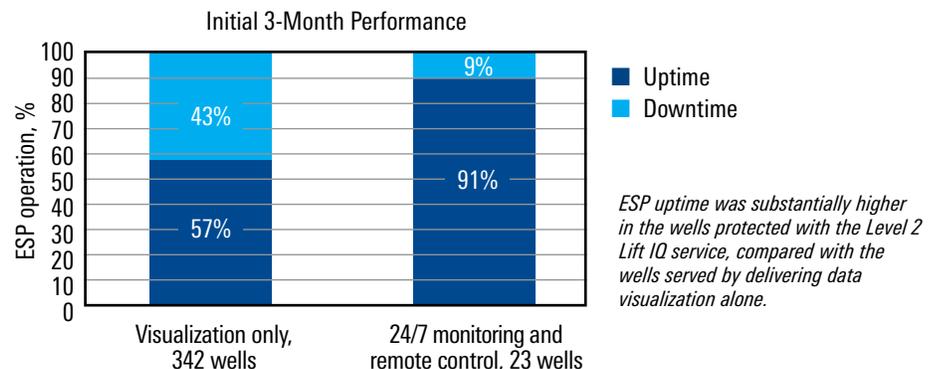
To minimize the costs and risks of wellsite visits, the operator sought an alternative means of intervening in ESP operations.

Surveillance and remote control protect equipment

Schlumberger proposed the Lift IQ service, which provides 24/7 surveillance of all artificial lift systems, preventing or resolving downtime, undesirable operations, and failures. Experienced engineers at an Artificial Lift Surveillance Center (ALSC) monitor and analyze data and can intervene in real time through proprietary hardware. Four levels of service enable operators to select the options that best suit their operations and economics.

Level 1 service was proposed for most of this operator’s wells, providing data visualization to inform its engineers’ decisions about ESP performance, maintenance, and improvements.

For the most critical, high-performing wells and for some wells known to experience frequent shutdowns or require frequent trips, Level 2 services were proposed, incorporating 24/7/365 monitoring and control. This higher service level is designed to ensure rapid identification of problems and remote control to enable immediate intervention and protect ESP equipment from potentially damaging conditions. At this level, when surveillance engineers see data indicating an artificial lift issue, they immediately e-mail recommendations to operations personnel. For critical events requiring immediate action, surveillance engineers are empowered to remotely intervene to avoid damage or shutdowns, and follow up with operations personnel afterward.



CASE STUDY: Lift IQ service remotely controls 31 critical events in 20 min. or less each, Permian Basin

Remote intervention minimizes production deferral and service visits

ALSC monitoring with remote interventions had a significant effect on ESP system uptime, with 91% average uptime compared with 57% for the ESPs in wells with visualization alone.

During the first 3 months of service, ALSC engineers remotely intervened 124 times in wells protected with the Level 2 service. Among the interventions were 40 starts, 24 gas lock recoveries, 17 motor speed increases, and 9 operation mode changes. Most importantly, 31 critical

events were controlled in 20 minutes or less each — compared with the nearly 7 hours required just to mobilize personnel to begin the investigation before the Lift IQ service was implemented.

For the 23 wells with Level 2 service, remote operation became the accepted practice for every elective stop, troubleshooting event, and startup. As a result, the operator avoided 1,800 bbl of deferred oil production that would have resulted while waiting for conventional service and eliminated 800 hours of field service time — a total value of about USD 206,000.

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