

Investment in Real-Time Monitoring Pays 70% Dividend

Case study: espWatcher system gives Signal Hill Petroleum remote access and control in mature field

Challenge

Improve well performance in a developed, stable, mature California field.

Solution

Use MultiSensor* system to monitor ESP temperature and pressure. Provide real-time access to the data and remote control via the espWatcher* system. Use the data to identify opportunities for improving performance.

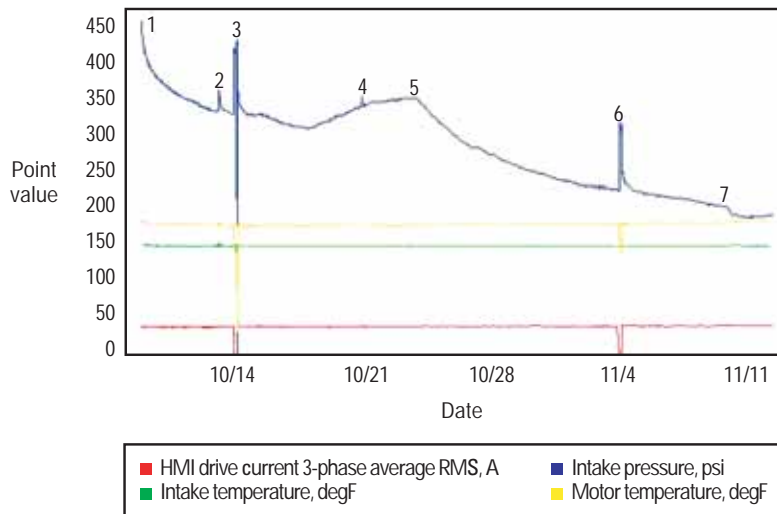
Results

Monitoring ESP performance enabled identification of problems and practices that limited well production. Changes to address the issues, including shutting down and starting the ESP remotely via the espWatcher system, helped increase oil production by 70%.

Production optimization in a mature field

In mature fields where fluid levels and wellbore conditions are typically stable, some operators don't bother trying to improve production performance. However, Signal Hill Petroleum decided to make the investment and it paid off within 2 months.

Signal Hill Petroleum selected the espWatcher surveillance and control system for ESPs. The MultiSensor monitoring system delivered continuous downhole pressure and temperature data instead of the traditional amperage measurements. The espWatcher service provided real-time access to the data and the ability to remotely control the ESPs. Shortly after installation the solution helped identify two problems: damaged equipment in a nearby well and a weekly treatment process.



This espWatcher pressure-temperature plot displays key events in the production optimization process for a well in a mature California field.

Pressure trend analysis identifies damaged choke

Drawdown measured at startup (1) indicated the well was stabilizing at 300 psi [2,068 kPa], twice the design estimate. Trend analysis of MultiSensor pressure data over the next few weeks (5) revealed a damaged choke on an adjoining injector well. Injection was 3½ times the desired rate. The increased water cut from the producing well was wasting power. After the choke was repaired, flowing pressure decreased to 200 psi [1,379 kPa], much closer to the design.

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Unexpected temperature spikes reveal problem process

Analysis of MultiSensor data also identified the source of unexpected temperature spikes (2, 4)—the ESP was running during a weekly chemical treatment in which the flowline was shut. Keeping the flow line open during the treatment solved the problem. This type of event is easier to identify with pressure and temperature data than with traditional amperage measurements.

Automatic alarm enables rapid response

The Schlumberger engineer received an espWatcher message on his mobile phone when thresholds were exceeded (3). The reason for the alarm: The well had been shut down to change a valve downstream. The engineer remotely restarted the ESP, ensured proper initial operation, and monitored events during the initial drawdown, and then the variable speed drive frequency was increased to maximize production (7).

The espWatcher system played an integral role in improving pump and well operations, helping to increase oil production by 70%.

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Remote, real-time communications—the enabler of the espWatcher system—delivers cost-effective improvement of pump and well operations even in mature fields.

E-mail wcp@slb.com or contact your local Schlumberger representative to learn more.

www.slb.com/oilfield