

Emerson's Wellpad Automation Improves Shale Well Economics by Managing Annular Flow

RESULTS

- Accelerated natural gas production
- Reduced trenching costs by eliminating the need to trench in rocky soils, resulting in faster project completion
- Wireless interface to other RTUs promotes portability
- Easy Drive actuator allows for flexible power solar operation



APPLICATION

Managing gas flow from the well casing/tubing annulus increases the flow rate during the free flow stage of a well lifecycle. Substantial revenues are realized from accelerated production

CUSTOMER

A long term producer in the Fayetteville Shale Play

CHALLENGE

Wells are often flowed using the annulus during the initial production phase of a well. The well is later placed in tubing flow for the duration of the well's production.

Equipment during the casing flow time is rented. Costs can be quite high, and production drops once tubing flow has begun. There is no electrical power available on site, so all solutions have to be suitable for solar applications.

“A PVI in the 10+ range makes using the system an easy decision.”

SOLUTION

An orifice meter and electrically actuated choke are added to a casing flow line. A solar-powered RTU implements a PID loop to maintain flow at a user-defined set point. This system can be run in tandem with the typical tubing configuration, resulting in an overall greater flow rate during the free flow stage.

The RTU is a FloBoss™ 107 communicating with other permanently mounted RTUs on the site using the Distributed RTU™ Network. This allows access to the sales figures for the pad and subsequent calculation of the tubing flow. Algorithms in the FloBoss 107 maintain the casing flow below critical rate for the well, allowing most sand and water production to continue in the tubing. The approach is desirable in order to minimize wear on the casing's inner surface. Once the free flow cycle is over, the equipment can be removed and placed in service elsewhere.

In addition to supporting such a portable system, the wireless nature of the Distributed RTU Network is particularly desirable for operations. In the past, long cable runs were used to connect RTUs. Such lengthy cables proved susceptible to high voltage lightning-induced transients. Damage from these conditions caused excessive well downtime. Using the Distributed RTU Network wireless network eliminated this problem.

Economic calculations for the system indicate project payout is less than 30 days with a Present Value Index in excess of ten.

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