LUFKIN

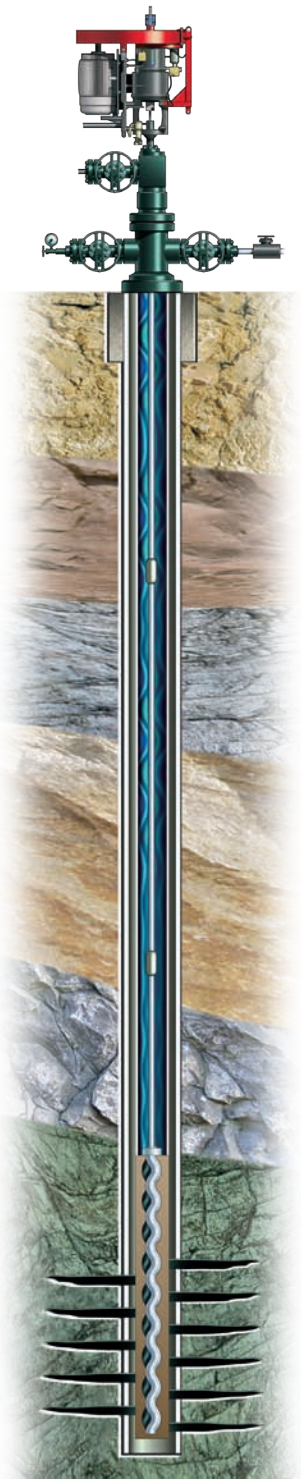
The Energy Flows Through Us™

LUFKIN WELL MANAGER™

Progressing Cavity Pump Controller

Optimize Fluid Production to Prevent Pump Damage

The LUFKIN WELL MANAGER (LWM) Progressing Cavity Pump (PCP) controller works in conjunction with a variable speed drive (VSD) to optimize fluid production while protecting the pump. The patented control algorithm varies the speed of the pump while measuring the amount of fluid produced from the pump. The controller ramps up the pump speed in user-defined steps. Production rates are measured at each step to establish a speed to production rate relationship. When an increase in speed does not produce a proportional increase in fluid production, the controller slows the speed by steps until optimum fluid production is achieved. The control algorithm continues testing the production rate by repeating the speed increase/decrease sequence.



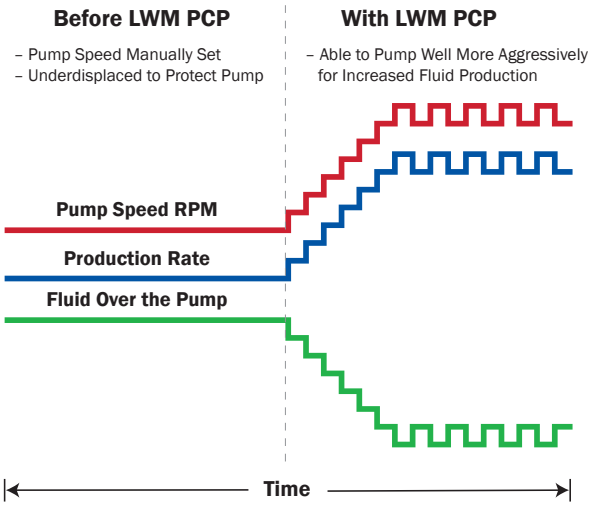
What the industry is saying:

"First time I've seen a unit effectively control a PCP well."

"The continual monitoring and adjustment gives me maximum production."

"Pump wear has been substantially reduced since installation."

Algorithm Control Method



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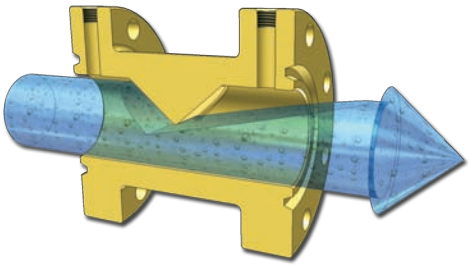
Features & Benefits

Secondary control features slow the pump in the event of a violation of the set limit points. If the monitored variable continues to be in an alarm condition when a programmed minimum speed is reached, the LWM PCP will stop the well to prevent damage to pumping equipment. Secondary control algorithms monitor:

- A torque signal from the variable speed drive
- Pump shaft RPM as indicated by a hall effect transducer sensing a magnet mounted on the drive shaft
- Low/high fluid rate limits.

Production measurement options supported by the LWM PCP include:

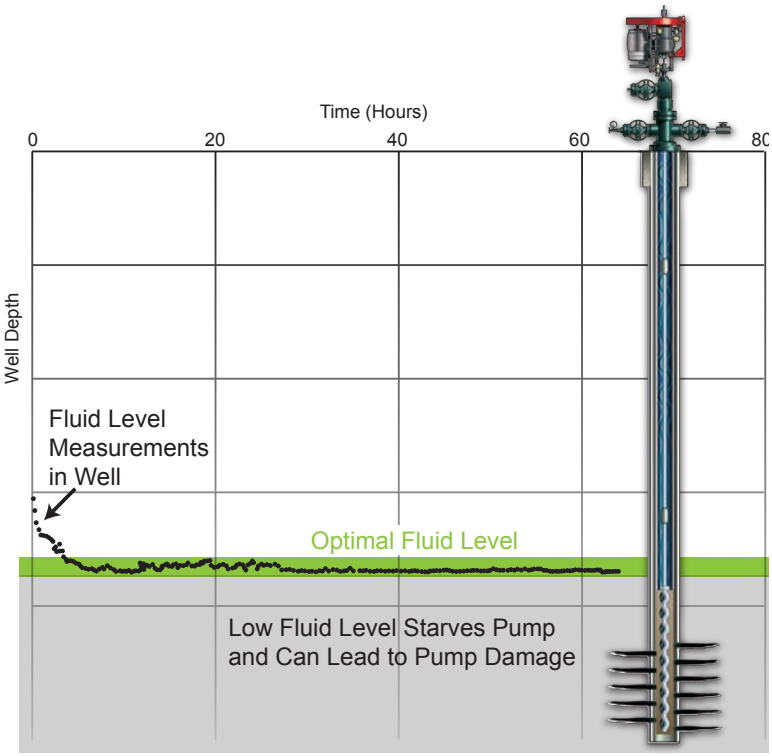
- Accumulator for dry contact input pulses
- Analog input
- Differential pressure signal from a Wedge Meter



Wedge Metering Device

The differential pressure across the wedge is measured to determine flow rate.

Integrated LWM with Variable Speed Drive



Adjust the speed to match reservoir conditions

Historical records of the previous 1500 one-minute samples are maintained for process variables including production rate, speed output to the VSD, actual measured speed of the pump shaft, torque and power signals from the VSD. A rolling 60-day history of daily production totals is stored in the LWM PCP.

The LWM PCP uses a Modbus compliant communication protocol. It also offers the advantages of the Extended Lufkin Automation Modbus (ELAM) protocol to those SCADA software packages that go beyond the limitations of conventional Modbus.

All configuration, status and historical data can be easily accessed and managed at the local keypad interface or via a data telemetry link to SCADA software.

The LWM PCP operates on the LWM hardware platform, reducing the number of spare parts to keep on hand, simplifying training, and giving you a single source for rod pump, injection well and progressing cavity pump automation.

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