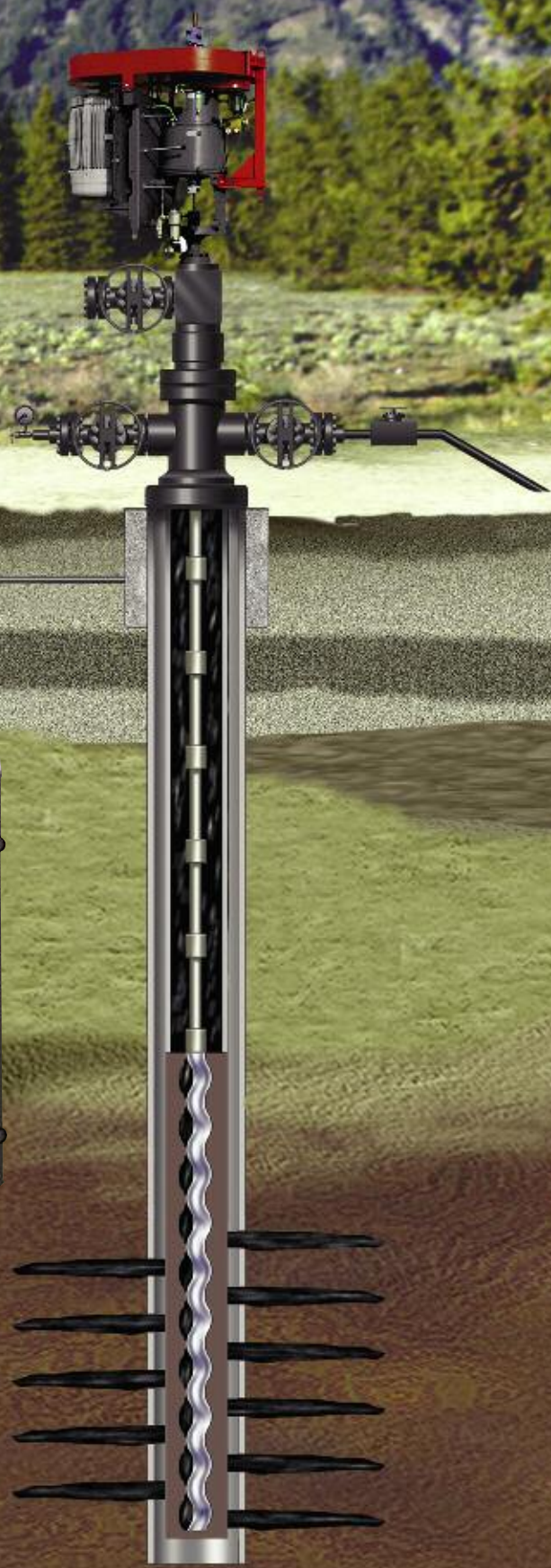


# SAM™ WELL MANAGER

PROGRESSIVE CAVITY PUMP CONTROLLER

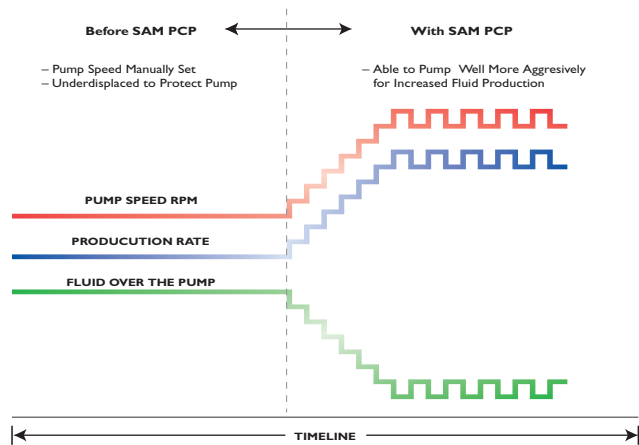


**LUFKIN**  
AUTOMATION

## Optimize Fluid Production While Protecting Your Pump

The Lufkin SAM Progressive 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 production from the pump.

The controller ramps up the pump speed in user-defined steps, measuring production rate at each step and establishing a speed/rate relationship. At the point that a step increase in speed does not produce the proportional step increase in fluid production rate, the controller starts to slow the speed by steps until a reduction in fluid production rate is measured. The control algorithm continues to test the optimum production rate by repeating the speed increase/decrease sequence.



### 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.

All of these 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 SAM PCP will stop the well to prevent damage to pumping equipment.

### Production measurement options supported by the SAM PCP include

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

**Field-proven to maintain peak production and prevent pump damage.**

*“First time I’ve seen...unit effectively control a PCP well.”*

*“Keeps the well pumped off constantly and in turn gives maximum production.”*

*“No excessive wear on pump seen to date.”*

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 60-day record of production totals for the day is also stored in the SAM PCP.

The SAM PCP uses modbus-based communication protocol, and 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 of the configuration, status and historical data available at the local keypad interface are available via data telemetry link to SCADA software.

The SAM PCP operates on the Lufkin Automation SAM Well Manager 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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Houston Manufacturing\*

