



Weatherford®

REAL RESULTS

CS7X Technology as a Solution for Monitoring and Logging with sPOD™ Sensors

Objectives

- Acquire an enhanced surface data acquisition system to more accurately characterize the reservoir and monitor and control well performance.

Results

- Weatherford provided a complete downhole pressure and temperature monitoring and data acquisition system for seven well pads, each consisting of 18 wells using progressing cavity pump (PCP) artificial-lift systems.
- The well pad manager system (WPMS) replaced all surface systems previously commissioned in the field. The WPMS consisted of 33 CS7X surface acquisition and data process systems that monitored 102 sPOD digital sensors installed in the field. The sPOD sensors monitored the PCP intake pressure and temperature. The CS7X systems processed the sPOD sensor signals, maintained historical logging of the data, and output the signals in both an analog current loop for variable-frequency drive (VFD) control and a Modbus® channel for additional interfacing.
- In addition to the WPMS, the same sensor technology was installed for reservoir characterization and performance analysis in two additional wells. These completions consisted of seven sPOD sensors, six installed horizontally over a 3,609-ft (1,100-m) section, and one monitoring the PCP intake pressure/temperature.
- Weatherford provided project management and engineering, configuration, packaging, training, and installation assistance for a complete solution.



Simplicity of mechanical and electrical design makes the sPOD digital sensor a robust pressure/temperature (PT) gauge, ideal for pump-off control and other PT monitoring applications.

Location

Venezuela

Well Type

Onshore oil wells

Production System

Progressing cavity pumps

Number of Wells

7 well pads, each with 18 wells

Products/Services

- Reservoir monitoring services
- sPOD gauges
- CS7X wellsite manager

Modbus is a registered trademark of Schneider Automation Inc.

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Value to Client

- Weatherford's WPMS with *sPOD* system greatly enhanced the client's ability to effectively gather well data, control production, and historically trend all well-pad information.
- The reservoir characterization and performance analysis system allowed the client's reservoir engineers to study the horizontal formation response and provided a thorough understanding during various pumping scenarios.
- Based on the success of this project, the client requested an additional WPMS with *mPOD*™ multipoint digital sensor. The *mPOD* sensor used a digitally transmitted signal to facilitate multiple-sensor communication on a single-conductor subsurface cable. The WPMS with *mPOD* system allowed up to four fully configured PCP wells to be interfaced into a single WPMS and facilitated data processing, trending, communications, and control for all wells. This system also allowed the client to use the same technology for all its well testing functions.



The CS7X wellsite manager monitors and logs subsurface data from the *sPOD* gauges.

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