

ForeSite® Sense Reservoir Monitoring

Optimizes Paired Coal-Seam-Gas-Well Production, Reduces Dewatering Rate by 50 Percent

Objectives

- Enable real-time data collection to monitor performance and make informed decisions to optimize production in surface-in-seam (SIS) paired coal-gas wells. The pair, consisting of one vertical and one horizontal well that intercepts the vertical well, were drilled 4,920 ft (1,500 m) apart. The operator needed to dewater the coal seam to lower reservoir pressure before the coal could release its gas for production.
- Monitor reservoir pressure, downhole water levels and progressing-cavity pump (PCP) performance to optimize output and avoid pump failure.
- Monitor tubing and casing pressure to mitigate well-integrity issues.

Our Approach

- Following a thorough pre-job analysis, the Weatherford team recommended ForeSite Sense reservoir-monitoring solution, including electronic pod sensors to deliver pressure and temperature (P/T) information from multiple zones. They also advised using Hydrow II production packers for multizone isolation.
- Weatherford engineers installed the Hydrow II production packers, which feature multiple bores to enable deployment of well-monitoring devices. They then deployed the ForeSite Sense pods on a single multi-drop conductor cable to obtain P/T measurements above and below the pump.

Value to Customer

- The ForeSite Sense reservoir-monitoring solution enabled the operator to achieve continuous, real-time downhole P/T monitoring and enhance production optimization and reservoir management in the coal-seam gas wells.
- Based on real-time P/T data, the operator evaluated the flowing bottomhole pressure while controlling fluid level and well drawdown to avoid pump-off conditions, optimize downhole pump performance, and prolong pump life. This allowed the operator to adjust pump performance and reduce dewatering rates by 50%—from several months to just 2 to 3 months.
- The real-time tubing and casing pressure data enabled the operator to monitor downhole conditions and take preventative action on any well-integrity issues. By preventing pump failure and avoiding associated workover costs, the operator was able to better control operating costs.



The ForeSite Sense reservoir-monitoring solution transmits pressure- and temperature-monitoring data to the operator, providing real-time updates to well performance.

LOCATION

Maranoa Region, Queensland, Australia

WELL TYPE

Onshore, surface-in-seam coal gas
1 horizontal, 1 vertical

FORMATION

Bandanna coal measures

CASING SIZE

9-1/2 in.

LINER SIZE

7 in.

TUBING SIZE

2-3/8 in. and 2-7/8 in.

TEMPERATURE

122 to 140°F (50 to 60°C)

MAXIMUM DEPTH

3,281 ft (1,000 m)

PRODUCTS

ForeSite Sense reservoir monitoring
ForeSite Sense electronic pods
Hydrow II production packers

