

# Qualifying and correcting non-contributing CBM wells

CASE STUDY 09-02

A GST-WELLDOG SUCCESS STORY

[CASE STUDY]

## Opting for Plan B: Test and know

A large independent operator had five wells that exhibited dewatering periods of one to four years without gas production. The operator asked GST-WellDog to test the wells and predict when the wells would begin to produce gas.

GST-WellDog performed TopSide Solutions wellhead test using its proprietary, award-winning reservoir evaluation technology. The work program required two days to test all five wells.

## Qualifying water producers as gas contributors and non-contributors

The first well was tested for headspace gas but not solution gas due to a pump failure during the test. The headspace gas levels indicated the well contained significant gas, but quantitative gas content results could not be obtained. This well was identified as a likely future contributor to gas production.

The second well not only had high gas content, but its solution gas profile indicated that it was nearing gas production. This conclusion was supported by hydrostatic head measurements taken during the test. This well was identified as a future contributor to gas production.

Unfortunately, measurements on the remaining three wells showed very low solution gas levels and anomalous water quality readings, suggesting that they had been miscompleted in the sand adjoining the target coal seam. Review of the well structures and completion histories supported that conclusion. These wells were identified as future non-contributors to gas production.

## Turning the economics of water production in your favor

The three non-contributing wells with likely miscompletions had produced 1,116,221 barrels of water over one to four years prior to the test. That water production and disposal cost the operator about \$290,000 – and it did not contribute to gas production from the target coal in any way. Those costs and lost time could have been avoided by testing the wells immediately after completion.

The test program cost the operator \$19,000, and it allowed the operator to avoid \$5,040 in unnecessary production costs per month going forward, for a payback period of 4 months. The results confirmed excellent gas-in-place for one well. More importantly, the results enabled the operator to recomplete the three non-contributing wells in order to access the gas in the coal surrounding them.

### **Challenge**

A large independent operator needed to quickly evaluate how to manage five CBM wells that had not shown gas despite long dewatering periods.

### **Solution**

GST-WellDog's TopSide Solutions technical service accurately and quickly measures the critical desorption pressure of a coal and the drawdown required to produce the gas. Since this service is performed at the wellhead on water produced from the reservoir using the existing tubing and pump, the test does not interrupt the dewatering process nor involve any field operations on the part of the operator.

### **Results**

One well was tested only for headspace gas due to a pump failure during the test. Another well was tested and showed high gas content and a critical desorption pressure just below the current hydrostatic production pressure. This well was about to begin to produce gas. Three other wells were tested and showed very low gas content and anomalous water quality readings, indicating that they were likely completed mistakenly in the adjoining sand.



1482 Commerce Drive, Ste. A  
Laramie, Wyoming 82070 USA

P: +1-307-742-6340  
F: +1-307-742-6342

welldog.com  
info@welldog.com