



Weatherford®

REAL RESULTS

Capillary Injection String Increases Gas Production by 160% in Well, Adding \$1600 in Revenue per Day

Objectives

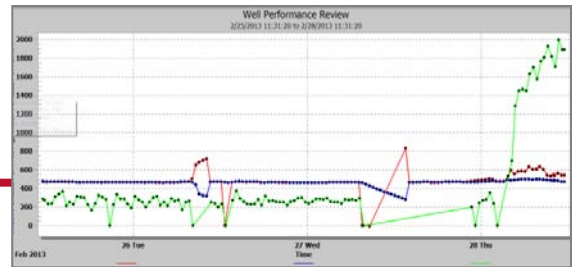
- Identify the most cost-effective solution to increase gas and water production in a horizontal Marcellus Shale well that was experiencing liquid loading and inconsistent line pressure causing fluctuation in gas rates. The well was only producing approximately 250 MCF/D and 5 BWP/D at a flowing tubing pressure of 480 psi.

Results

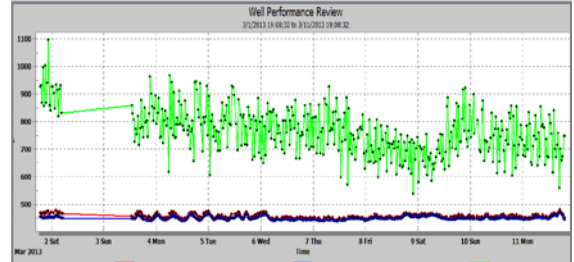
- Weatherford conducted an evaluation of the well and determined that capillary injection string was the best artificial-lift method to combat the issues in the well. We installed a 3/8-in. 2205 capillary injection string into the 2 7/8-in. tubing at a set depth of 5,420 ft (1652 m), 100 ft (30 m) above perforations. Once the installation was complete, the client's chemical provider pumped surfactant (foamer) at the rate of 4 qt/d.

Value to Client

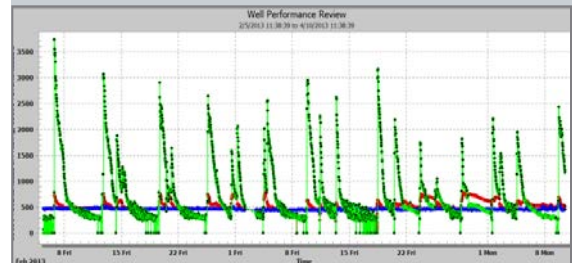
- The Weatherford capillary injection string allowed the client to increase gas production from approximately 250 to 650 MCF/D. This 400 MCF/D increase in production at \$4.00 per MCF resulted in approximately \$1,600 per day and \$584,000 per year in additional revenue.



The chart above from day one shows the well is loaded prior to the installation of the capillary string. After the installation the well unloaded and production spiked to over 2 MMCF/D.



The 10-day trend chart above shows that the production leveled off and the well experienced a consistent flow rate that was above the decline curve.



After 60 days, the well settled at or above the decline curve with a consistent flow rate and was unloading on its own.

Location

Bradford County, Pennsylvania

Well Type

Onshore horizontal gas shale

Number of wells

1

Tubing Pressure

480 psi

Tubing Size

2-7/8 in.

Products/Services

Capillary injection string

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