

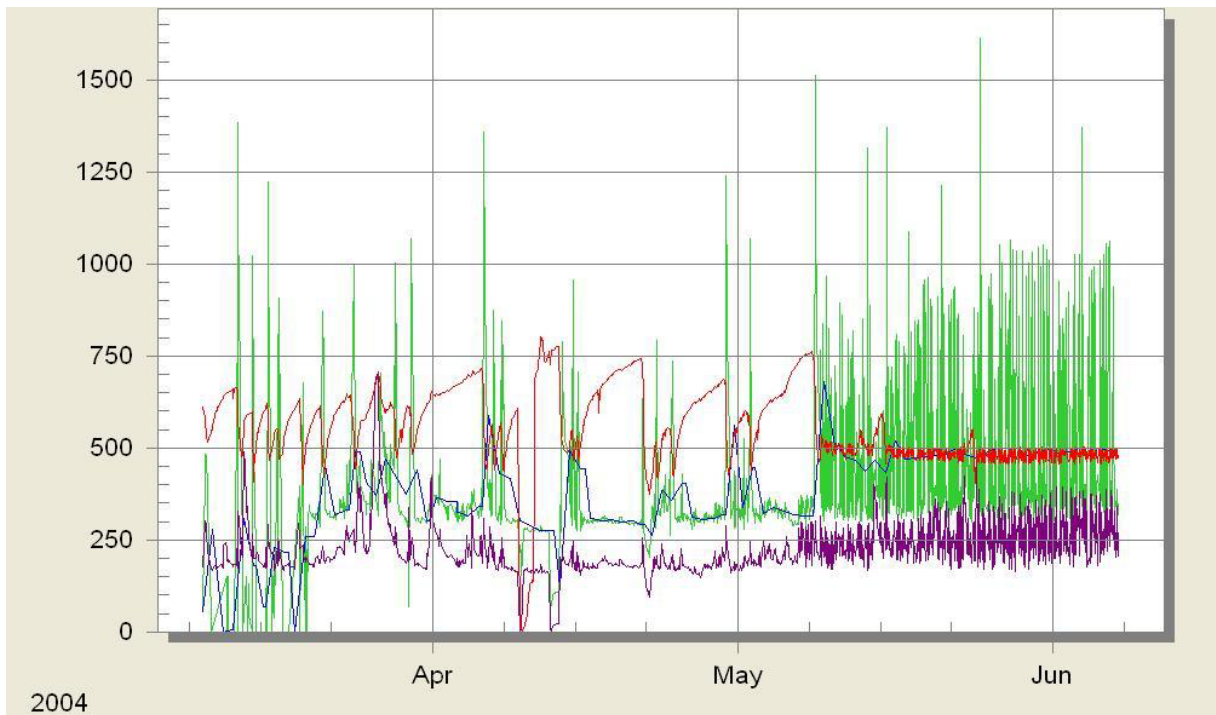
Vortex Downhole Tools 2004

Intermitted Well Flow Case Study

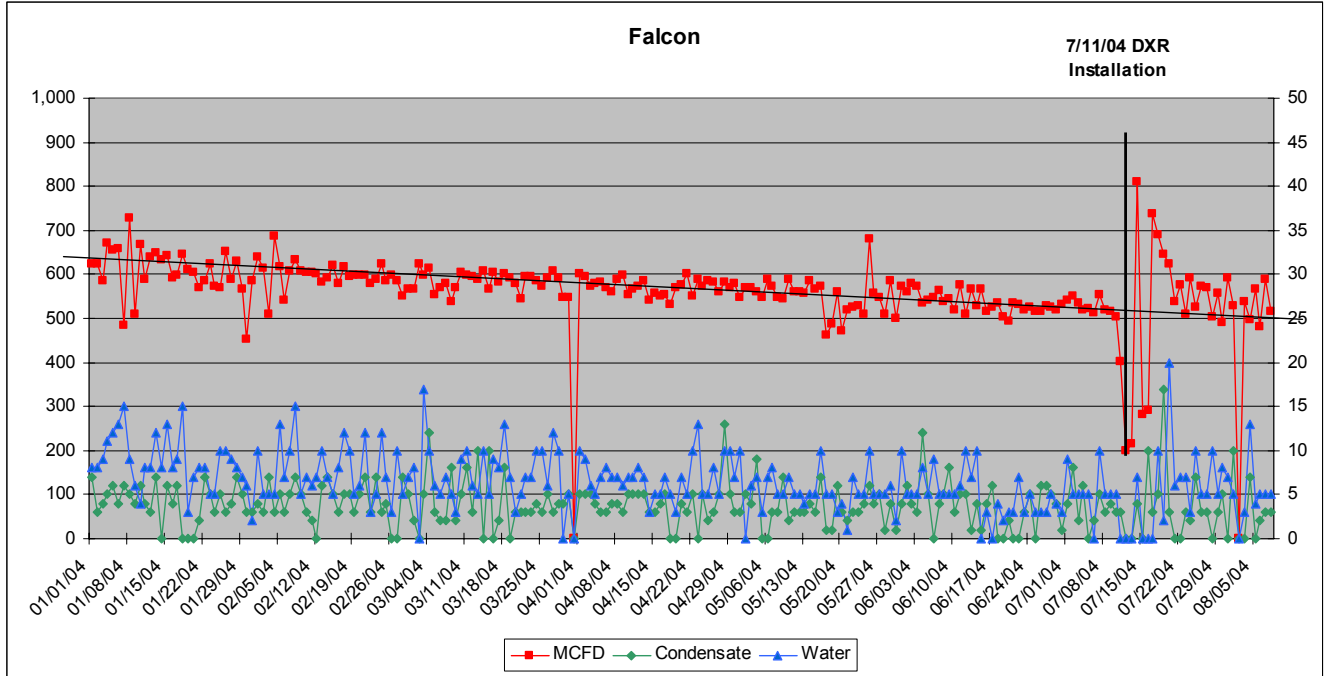
“Deep, Tight, Low Water and Moderate Pressure”...Piceance Basin – Tight Gas Well – Downhole DXR enhances the effectiveness of an automated intermitter, Lowers Flowing Bottom Hole Pressure and increases rate 150 MCFD – 8,000’ producing well. This installation shows how the DXR tools can benefit even a well that is producing at a rate below the minimum rate to continually flow 24/7 with a DXR tool in place. In this case, the DXR enhanced a well that was produced with an automated intermitter. The automated intermitter starts the ‘on’ cycle given a casing/tubing differential and then shuts-in upon the gas rate reaching a predetermined minimum gas rate of about 275 MCFD. In this manner a well is able to maximize its production time.

Based on the chart shown below, the bottom-hole pressure for this well was reduced by 200-250 PSI to a stable 500 PSI. Gas rate appears to have been improved by 150 MCFD.

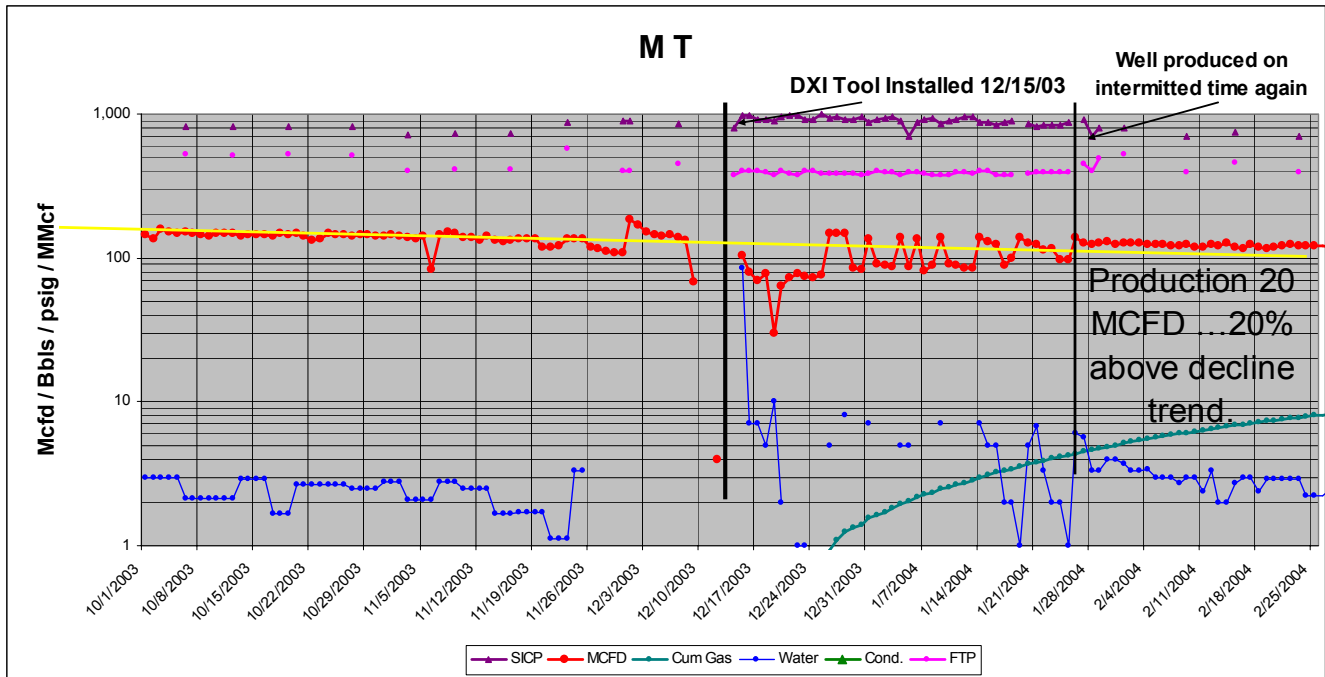
The red line represents the casing pressure, the purple line the tubing pressure, the green line the instantaneous gas rates (measured 3x per hour) and the blue line represents daily gas production.



“Deep, Tight, Low Water and High Pressure”...Green River Basin – WY – Downhole DXI Removes Water from Wellbore – Stabilizes Production – 12,000’ deep producing well. Prior to the installation of the downhole DXR, the well was operating on a timer and was produced in three cycles per day and ‘on’ for about 18 hrs per day. A DXR tool was installed and the cycles were kept the same. Production has been increased by 10 -15% from the pre DXR trend line. This production would likely improve to a greater degree with an automated intermitter in place (as is discussed in the Piceance Basin well). Additionally, as this well is significantly greater than 7,500’ deep, a second tool stacked mid-hole would also likely improve the results seen to date.



“Deep, Tight, Low Water and High Pressure”...Ft. Worth Basin – TX – Barnett Shale Well – Downhole DXI Removes Water from Wellbore – Stabilizes Production – 8,000’ deep producing well. Prior to the installation of the downhole DXI, the well was operating on a timer and was produced for about 12 hrs per day. A DXI tool was installed and the well was taken off of the timer. However, the gas production was less than 40% of the critical gas rate and the well was not able to flow effectively 24/7. But, when the well was put back on the same timer schedule with the DXI tool in place, production came up above the pre-installation decline trend nicely. Production now appears to be 20% above the trend line.



To find out how Vortex Flow can help you increase production or reduce your LOE costs, call us on 720.227.0350 or visit us online at vortexflowllc.com and go to the “Forms” section.