iWELLSITE AUTOMATION INC

Using Inflow Performance Relationship For Well Production Targets

Historically, and even today production engineers and field operator's use a very simple method of determining if a well can produce more fluid. They take a fluid shot. Once the fluid shot is taken the result is typically that there is more fluid in the well to be produced (a high fluid level), or the well is pumped off and there is no further production available. But is this true? Using this supposed "tried and true" method can be costly in a couple of ways.

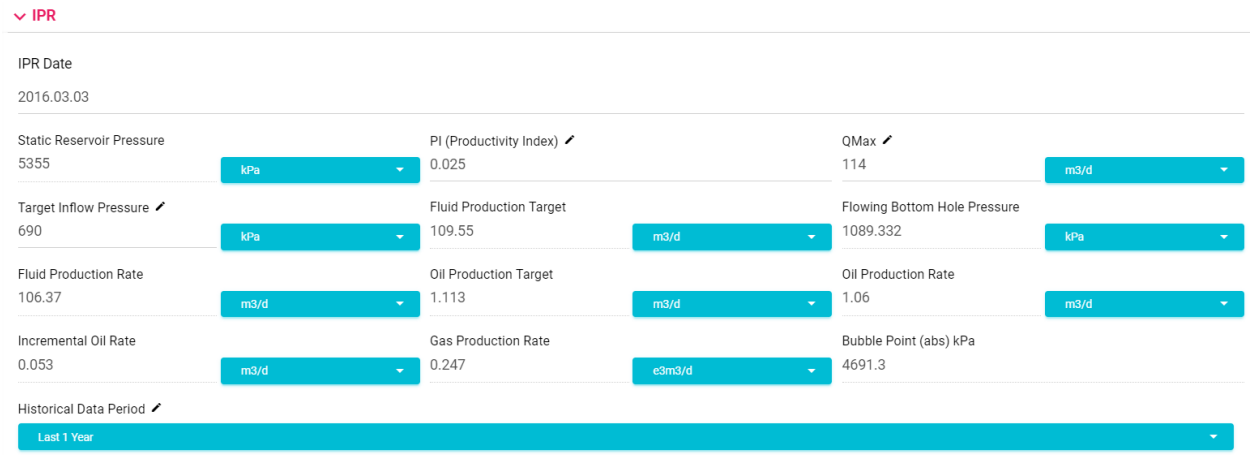
For example; the result of a high fluid level using this method will end up with the action most likely to be taken…. to speed up the pump in the well or even replace the current pump with a larger volume pump.

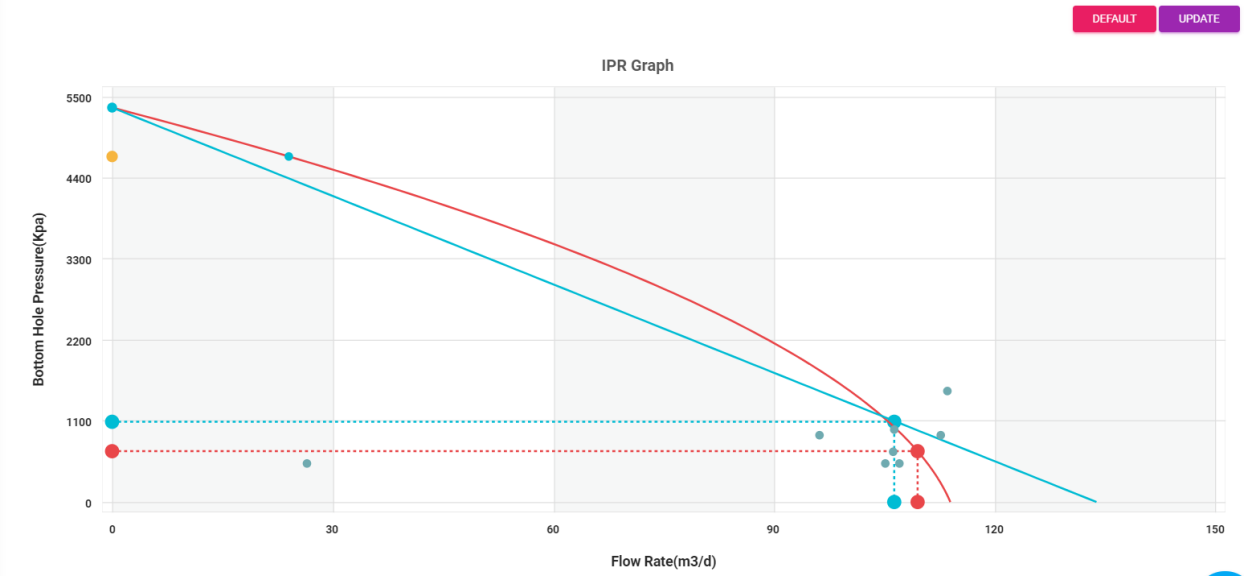
For the other result or example of low or no fluid level in the wellbore, the pump may be slowed or nothing further is done.

Another question to ask is; what happens if the flow into the wellbore from the reservoir is not uniform? Experience has shown, wells that produce emulsions consisting of oil, gas and water never flow uniformly into the wellbore from the reservoir. Typically, you will get slugs of gas, oil and water all creating a more dynamic rate of flow than most would be willing to believe or think about. If this is true, the timing of the fluid shot and corresponding well production test can have varied results equating to lost revenue by either speeding up or over sizing pumps in wells that really do not have the potential to produce more or missed opportunity on wells that have more than what we might think.

So, what do we do to determine a wells true production potential?

We create an IPR (Inflow Performance Relationship). Assuming we have accurate Fluid Levels that have been correctly suppressed for foam, this tool can help to level out the dynamic ranges of a producing well. From this IPR we can then come up with a more realistic and accurate production target for our wells. It is important to note that the more well test and fluid shot history we have, the more confident we become in determining a realistic target for our wells. We can do this by adjusting a "best fit" IPR curve that is easily adjusted against fluid shot and well production test history. From this we will have great confidence that our production targets are real and obtainable.





The above illustrations show snapshots of the “iWellsite” IPR functionality, based on real time analytics and historical data. If you would be interested in a demonstration of how this tool may help you to achieve your production targets. Please contact the iWellsite team for a free demonstration.

In a future article we will talk about fluid shot analysis and foam suppression.

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