

SRVmax™ – Greater Operating Efficiency in the Cardium

Business Needs

Our customer, operating in the Cardium formation for several years, had drilled dozens of wells within the formation, experimenting with a variety of wellbore spacings and fracture numbers and sizes. In order to optimize the economics in this low permeability formation, it became particularly important to find efficiencies within operations. With that in mind, a more precise means of completing wells in this tight oil play became necessary. Trican's SRVmax offered the right solution for the job.

Trican Solution

SRVmax is Trican's integrated process for optimizing the recovery of oil and/or gas in a resource play. The process includes a number of stages, bringing into focus the preferred method of planning and producing the reservoir. For our customer's Cardium play, the process began with microseismic fracture mapping. This involved monitoring microseismic activity from a treatment being pumped from an observation well, in order to provide fracture geometry and orientations. Microseismic mapping helped the customer understand the fracture geometry specific to its formation. The microseismic data was then incorporated into a calibrated fracture model, creating a predictive design tool for future fracturing work in the area.

In addition, the customer employed reservoir characterization in order to understand the core characteristics of the reservoir, as evidenced in rock properties. The customer also provided reservoir data from their own analysis to further constrain the reservoir model. The information compiled was used to help make the production history matching more accurate, as well as the numerical reservoir simulation more reliable.

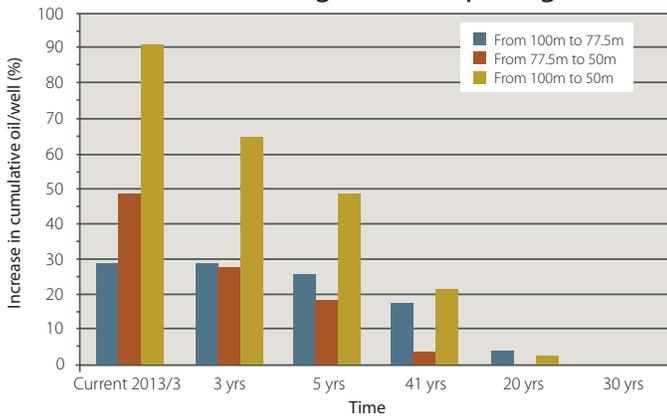
Once calibrated, the reservoir simulation was able to run with multiple scenarios, demonstrating how the reservoir would respond to adding or subtracting treatment intervals and to the spacing of wellbores.

The Trican Advantage

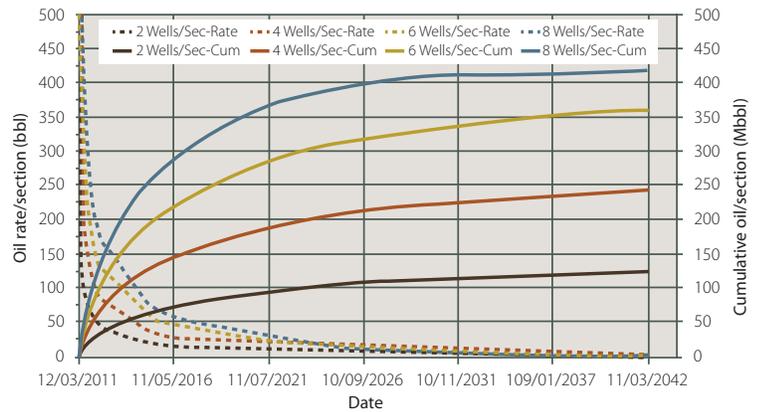
With the ability to model various scenarios and compare how the reservoir responded within the simulator, the customer was able to make informed decisions on optimizing its resource play. Trican's SRVmax study led to new understandings and increased operational efficiencies for the customer. For example, the study showed that by simply decreasing the fracture spacing from 77.5 m (254.3 ft) to 50 m (164 ft) within a horizontal span, they could increase their production by 49 percent within the first year. It also showed that with four wells in a section, there was no production interference between wells, even after 30 years, due to the low permeability.

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Increase in cumulative oil/well with decreasing fracture spacing



Effect of wellbore spacing on oil production (Fracture spacing: 77.5m)



Case Study Snapshot

Date: 2012

Location: Cardium formation

Service Line: Reservoir Engineering

Product: SRVmax™

Challenges:

- Low permeability made high recovery factors difficult to achieve.
- The customer needed to find a better way to design wellbore and fracture spacing in order to optimize production.

Trican Innovation:

- Trican's Stimulated Reservoir Volume process (SRVmax™) was applied to unconventional reservoirs.
- A calibrated fracture and reservoir simulation model were employed to plot advantageous wellbore/fracture spacing and design.

Results:

- The customer was able to analyze an increase in wellbores and compare that with resulting recovery factors and costs, in order to determine the economics of the play.
- The customer was able to understand how increasing the number of wellbores, while decreasing fracture spacing, would increase hydrocarbon recovery.
- For more detail on this SRVmax™ study and its results, see SPE 160002.



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