

Packers Plus® Case Study



Packers Plus provides technological edge in the Lower Shaunavon

StackFRAC Multi-Stage Fracturing System key to economical production

Background

The Lower Shaunavon formation in southwest Saskatchewan is a tight limestone, oil-bearing zone at a depth of approximately 1,350 m. The net pay ranges from four to 16 m and produces medium-gravity crude. As with the Bakken to the east, the Shaunavon formation has been known about since the 1950s, but was not seen as an economical reservoir until the advent horizontal drilling and multi-stage fracturing.

The Challenge

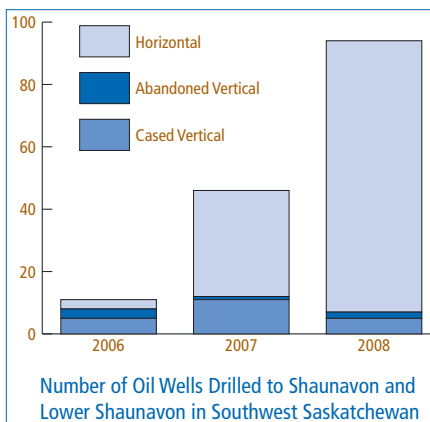
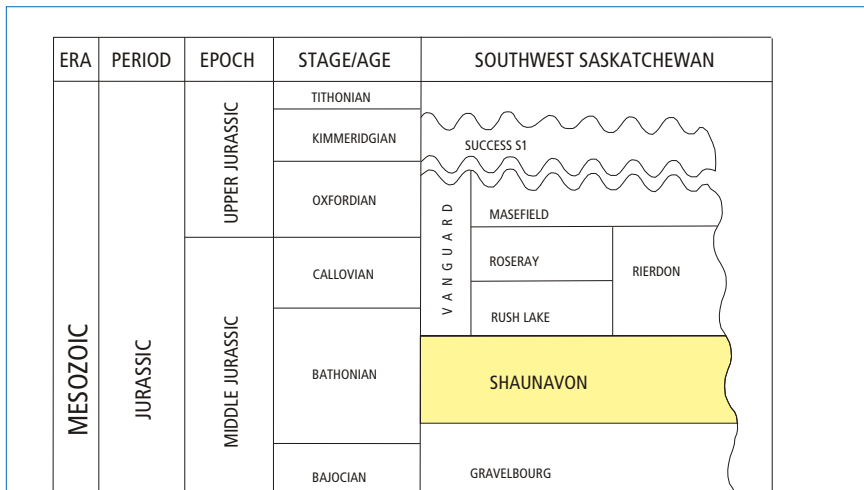
The Lower Shaunavon is a very difficult formation to extract oil from being a crystalline limestone with low porosity and permeability values. The permeability of the Lower Shaunavon is much lower than the overlying Upper Shaunavon, which has received most of industry's attention. Additionally, because there is no water drive present in the reservoir, secondary recovery by waterflood may be required to maintain pressure.

The Solution

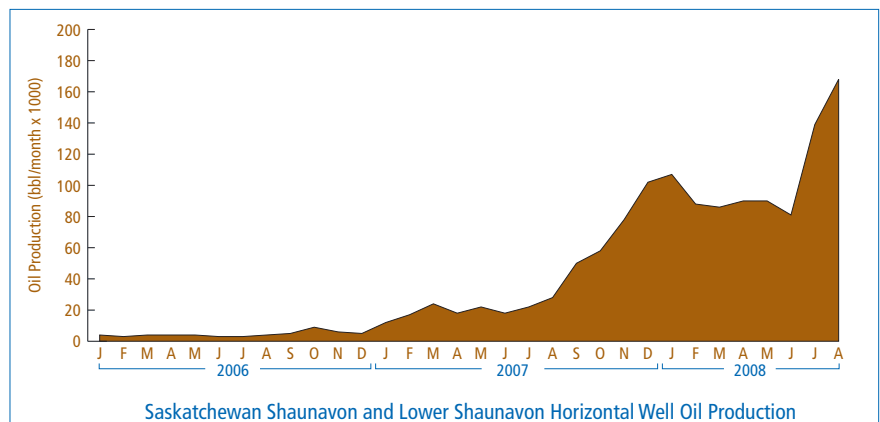
An operator working in the Lower Shaunavon used 10-stage StackFRAC® Multi-Stage Fracturing Systems to consistently create multiple fractures along the entire length of their open hole horizontals in a single, continuous operation. With porosity values were between 10 – 20%, fracturing the formation increased conductivity opening up the available porosity. The operator completed over 20 wells in the Lower Shaunavon with the StackFRAC system in 2008 and has employed the system in five other formations throughout Western Canada.

The Results

The StackFRAC completed wells have initial production rates of up to 200 to 300 bbl/d, with typical 3-month initial production rates of 120 – 150 bbl/d. This is a 10-fold increase over fractured verticals, which achieve in the range of only 10 to 20 bbl/d. With oil prices on the rise and the favorable Saskatchewan royalty regime for horizontal drilling, the Lower Shaunavon is sure to be an important play for years to come.



Source: Government of Saskatchewan



Modified from Nickle's Profiler December, 2008

Some or all of the systems, methods or products discussed herein may be covered by one or more patents, or patents pending, including US patent numbers 6,907,936; 7,134,505; 7,108,067; 7,543,634; 7,431,091; 7,021,384; 7,353,878. Copyright © 2010 Packers Plus Energy Services Inc. All rights reserved. CAN-03-AUG-2010



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