



CHALLENGE

The client had converted this well from a producer to an injector after 1 year of production. The well initially injected at over 300 b/d. The injection rate had fallen to below 100 b/d within 2 years. After falling to 20 b/d a year later, an acid job returned the injection rate to 100 b/d, but that lasted only 3 months. The client was looking for a cost effective solution that would last longer.

HIGHLIGHTS

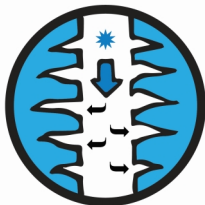
Shale oil field
Horizontally drilled
Multiple stage frac ports

LOCATION

SE Saskatchewan

CONDITIONS

Measured Depth: 3,000 m (10,000 ft)
TVD: 1,500 m (5,000 ft)
Bakken shale



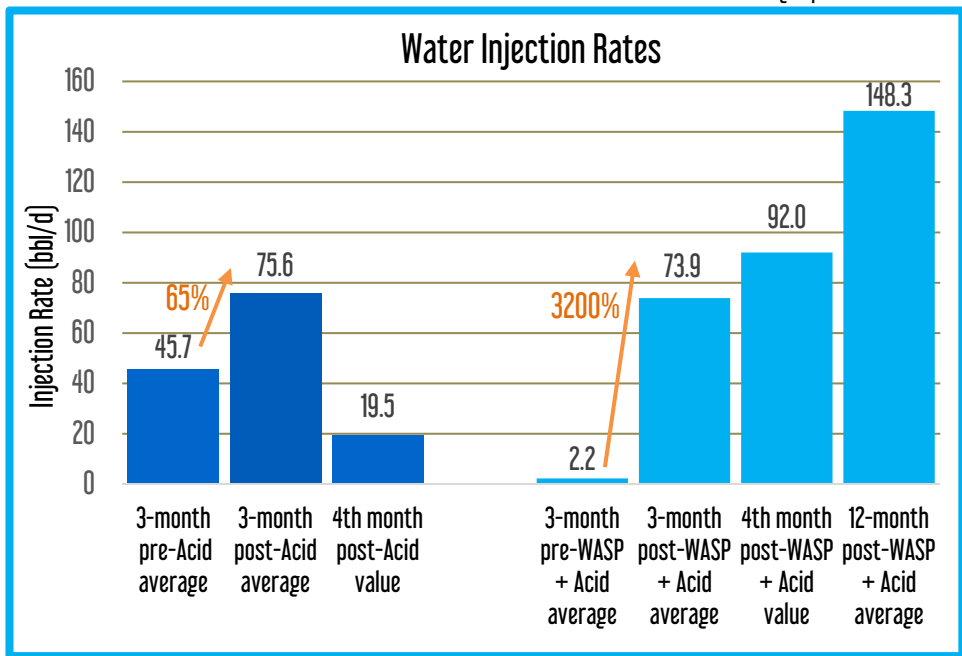
Injection well

OUTCOME

- The well saw an immediate increase in injectivity
- The average 3-month injection rate went from 2.2 b/d to 73.9 b/d (3200% increase)
- The average injection rate for the 12-months post-WASP® was 148.3 b/d (6600% increase)

67x
increase in
injection rate

Raw data graph on back



SOLUTION

Improve connectivity to the reservoir by removing CaSO4 scale and clearing out blockages using electro-hydraulic stimulation technology

- The Blue Spark WASP® 275 (Wireline Applied Stimulation Pulsing) tool was run on tractor to the bottom of the lateral and then was pulsed at each frac port while moving uphole
- The well was treated in 13 hours of total operating time
- “Green” acid was bull-headed down the wellbore to the interval that had just been treated
- The well was put back on production and monitored

