

Case History

Delaying Water Breakthrough in a Horizontal Well With EQUALIZER™/MPas™

Problem

A client needed to complete a horizontal well with a completion able to provide an effective distribution and equalization of the oil influx from the reservoir into the wellbore. The well was planned in one of the most fractured areas in the reservoir—a highly permeable, naturally fractured carbonate reservoir with light- and low-viscosity oil. From previous experience, wells in this area showed very uneven flow distribution, early water breakthrough, and short life. The client wanted to equalize oil influx in the entire horizontal wellbore, by mitigating fractures contribution, delay water breakthrough and prolong well life, and increase sweep efficiency and ultimate recovery.

Solution

- Baker Oil Tools was selected due to its extensive experience with EQUALIZER inflow control devices and MPas open-hole packers
- Preliminary simulations were performed to design the most effective completion
- EQUALIZER joints were evenly distributed along the horizontal section to maximize flow distribution
- Operation was smooth and installation flawlessly executed

Results

- Production log was run after recompletion of the well and showed perfect packer sealing and excellent contribution of the entire horizontal section
- Although several fractures were encountered while drilling, all the zones contributed at almost the same rate
- The oil production rate was 2,000 bbl/d as per customer target, with no water production
- The customer was able to redistribute the flow in the wellbore, prevent water breakthrough and increase the well life

Project Details

Location: Abu Dhabi

Date: February 2007

Open-Hole Horizontal Length: 2,000 ft (609.6 m)

Open-Hole Size: 6 in.

Casing Size: 9-5/8 in., 47 lb/ft

Liner: 7 in., 29 lb/ft

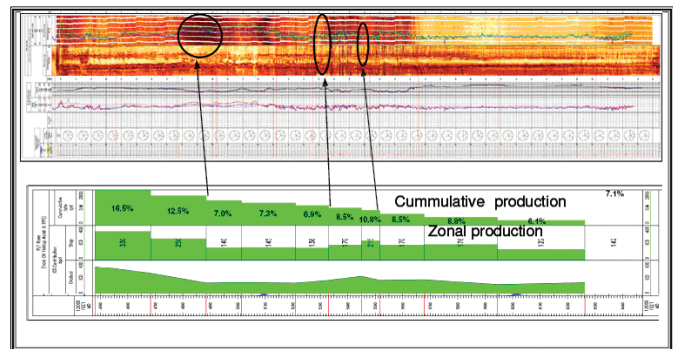
Liner: 4-1/2 in.

Top of 7-in. Liner Depth: 3,904 ft (1189.9 m)

Top of 4-1/2-in. Liner Depth: 4,267 ft (1300 m)

Baker Oil Tools Equipment

- 10 EQUALIZER CF (consolidated formation) joints
- 11 MPas open-hole packers
- SLZXP™ liner hanger/packer



Production results after EQUALIZER/MPas completion