

Bolivian Operator Saves Well in High-Water-Cut, Unconsolidated Sandstone Reservoir

OCA system and OilSEEKER acid diverter help increase production from 3 MMcf/d to 10.5 MMcf/d in field's first matrix acidizing treatment

CHALLENGE

Stimulate gas flow through the gravel pack completion to reduce sand and water production in a depleted, unconsolidated sandstone reservoir.

SOLUTION

Use OCA* organic clay acid system with OilSEEKER* acid diverter to achieve deep, live-acid penetration, plug water-saturated zones, and stabilize fines.

RESULTS

Realized sustained gas production rates of 10.5 MMcf/d with a $5\frac{5}{64}$ -in choke, as confirmed by NODAL* production system analysis.

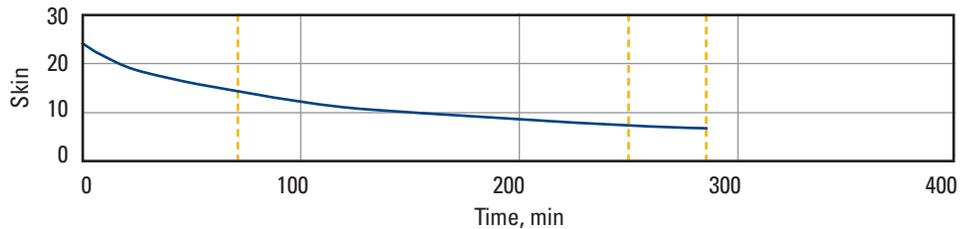


Bolivian operator needed to increase production in depleted sandstone formation

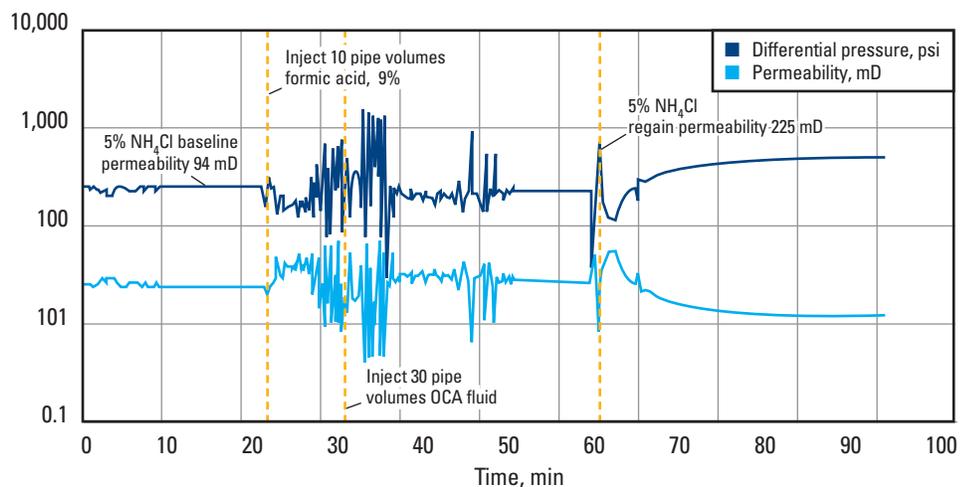
High sand and water production—and up to 15% clay content—often restricted productivity from the Cangapi formation, an unconsolidated, sandstone reservoir. To overcome migrating fines and discontinuous pay zones, Schlumberger applied ISO-AllPAC[†] sand-control screens with Alternate Path[†] technology. However, some wells were still producing under potential after gravel packing.

Schlumberger recommended field's first engineered matrix treatment

To determine the best solution, Schlumberger performed core flow testing and VirtualLAB* geochemical simulation. After careful analysis, the team recommended matrix acidizing stimulation with OCA organic clay acid. This treatment fluid was ideal for its ability to remove damage and stabilize fines with minimal risk of forming damaging precipitation such as hydrated silica gel. Schlumberger also recommended MSR* mud and silt remover to reopen clogged pathways and OilSEEKER acid diverter to prevent treatment fluid from entering possible water-bearing zones. Nitrified fluids were used to enhance performance and cleanup.



Operator used Virtual Lab* geochemical simulation software to predict treatment effects on damage removal.



Core flow test performed at the Schlumberger Client Support Lab helped define treatment parameters.

Operator revived dead well, increased production to 10.5 MMcf/d

NODAL analysis showed poststimulation production of 10.5 MMcf/d with a $5\frac{5}{64}$ -in choke. This was significantly higher than offset wells. The success of the treatment led the operator to use ISO-AllPAC screens with OCA stimulation fluid on subsequent wells.