Operator in Southern Mexico Triples Well Production Using Chelant-Base NARS Treating Fluid

Nonacid reactive solution increases production from 300 bbl/d to 994 bbl/d, reduces cleanup time by 400% in a high-temperature carbonate reservoir

Operated needed to stimulate nonflowing wells
An operator in southern Mexico completed a well in the Cretaceous Formation with a 7-in uncemented perforated liner to 16,647 ft (5,074 m) across a gross interval of 292 ft (89 m) with a net pay of 157 ft (48 m). This zone was a naturally fractured limestone with a formation temperature of 305 degF (152 degC), which presented a challenge to control the high-temperature reaction kinetics and adequately divert acid along the nonfractured sections. The produced oil from this field also has the potential to be incompatible with both HCl and organic acids.

At the same time, an offset well was drilled and completed in the same formation. Because neither well flowed naturally, the operator used coiled tubing to lift the wells with nitrogen. The wells produced an estimated 300 bbl/d and 100 bbl/d, respectively.

Chelant-base stimulation fluid reduced treating volume by 69%
Schlumberger recommended NARS treating fluid for higher wormholing efficiency in this high-temperature well. Schlumberger stimulated four perforated intervals with 50 galUS/ft of NARS fluid and 10 galUS/ft of MaxCO₂ Acid* degradable diversion acid system, while the offset well was stimulated by a competitor with 190 galUS/ft of an organic and inorganic acid blend and 10 galUS/ft of a polymeric diverting acid.

Operator increased oil production 231%, reduced cleanup time 400%
The well treated with NARS fluid cleaned up in just 2 days compared with 10 days for the offset well. Oil production from the well treated with NARS fluid increased from an unstable production of approximately 300 bbl/d to a stable production of 994 bbl/d. In addition, the bottomhole flowing pressure increased from 1,840 psi to 2,700 psi (12.7 MPa to 18.6 MPa). The offset well continued to produce less than 150 bbl/d after acid stimulation. The production increase in this well and similar results in other wells have made NARS fluid the preferred fluid for stimulating high-temperature fractured carbonate reservoirs.