



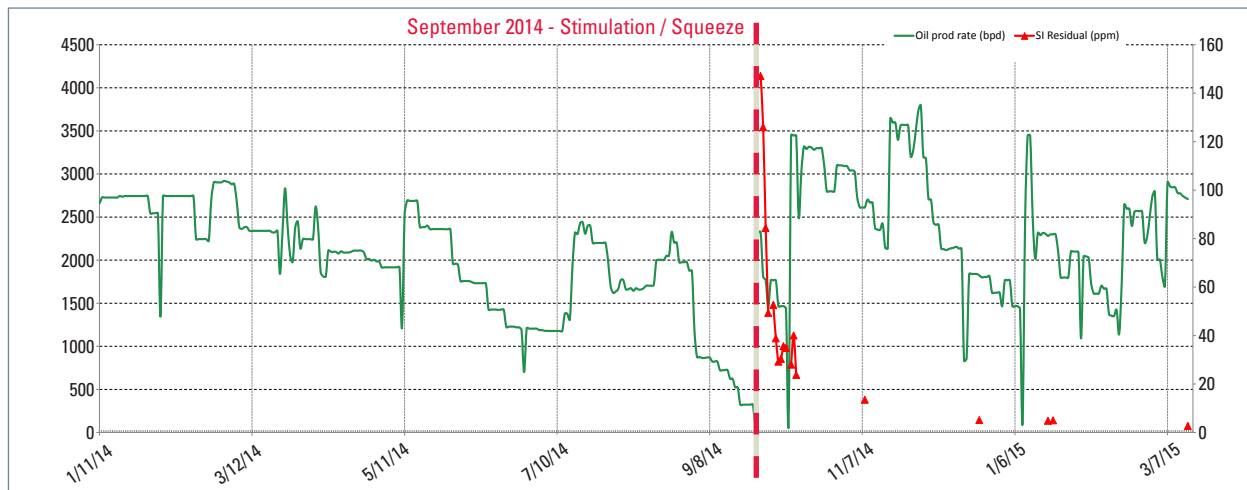
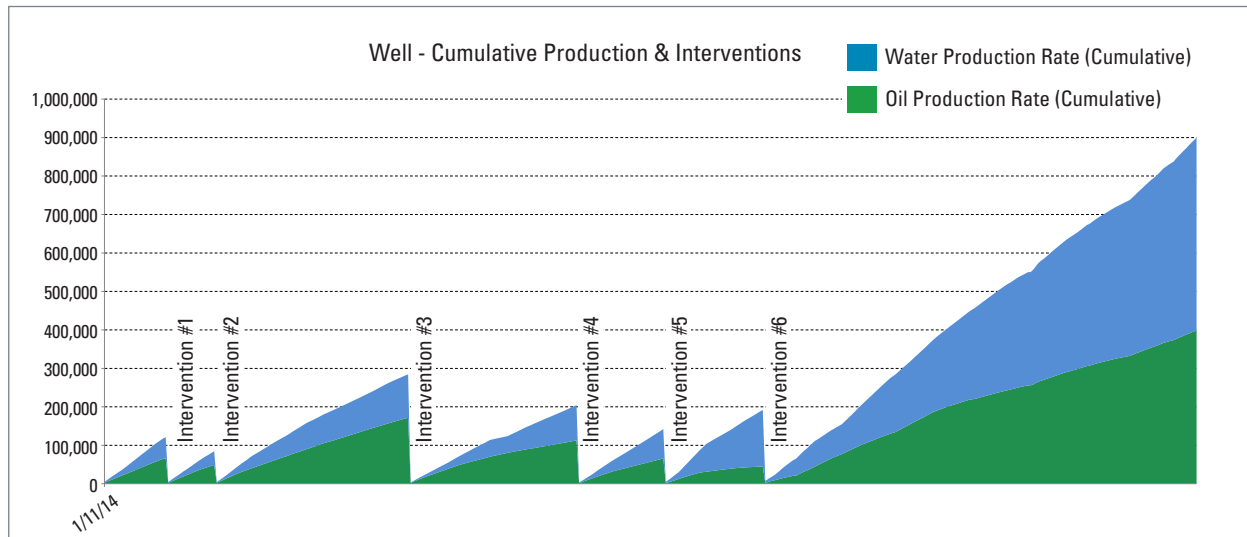
MC S-2263 Scale Inhibitor

Unique Matrix Treatments Boost Production 26 Percent in Mature Asset in Latin America Region

Location: Latin America Region

Overview

In mature oilfields, production can decline as fields are affected by the presence of water, resulting in increased production costs. This was the case of Mexico’s Cantarell field, an aging offshore field in the Bay of Campeche. Since 2008, water cut has increased from 10 percent to 90 percent; and this problem, combined with mineral scale in the wells, has significantly affected oil production in the field.



Production increased 48.8 percent in this mature asset after customized scale inhibition treatment, which lasted more than twice the expected time of five months, with no remediation treatments needed.

The number of restorative interventions to remove scale had increased dramatically since 2010, and measures considered to mitigate the problem had failed for various reasons. One alternative was continuous scale inhibitor injection of gas through gas lift, which did not solve the problem because the deposition was carried out from the producing interval through the production lines. The other alternative was chemical treatment of the reservoir, but the challenges included openhole termination wells with lengths greater than 100 meters (328 feet), low adsorption efficiency, poor placement of the treatment fluid along the hole, and losses of inhibitor through the fractures.

The customer asked Halliburton to treat one of the most critical Cantarell wells, with the objectives of reducing the number of interventions, and inhibiting scale formation from the reservoir to the surface. Halliburton designed and executed an unconventional matrix stimulation that combined the scale inhibitor MC S-2263 with the stimulation job. Included in the design of the solution were adsorption-desorption tests that examined a field core, determining type and minimum inhibitory concentration, the effect of the product multilayer formation determined by Langmuir isotherms and Freundlich isotherms, compatibility with the stimulation fluids and crude oil, corrosion inhibitor testing, and ion analysis of the formation water.

The treatment was successful. Scale inhibition has lasted more than twice the expected time of five months, and remediation treatments have been unnecessary. This was the first such treatment performed in this field, the first in a naturally fractured formation, and the first with well completion this complex.

The customer gained a production increase of 48.8 percent and avoided expensive remediation costs that would have risked the operational continuity of this well. The well has achieved 250 days of operation versus its previous 90 days average time.

“This was an outstanding cross-PSL effort by Production Enhancement and Multi-Chem,” said Francisco Tarazona, Latin America region vice president. “This encouraging result opens a new market segment in Mexico.”

CHALLENGE	SOLUTION	RESULT
<p>Scale mitigation in mature asset to reduce number of interventions and inhibit scale formation from the reservoir to surface.</p>	<p>Custom design and execution of unconventional matrix stimulation that combined the MC S-2263 scale inhibitor with the stimulation job.</p>	<p>Scale inhibition has lasted more than twice the expected time of five months with no remediation treatments, and production has increased 48%, with the well achieving 250 days operation compared to previous 90 days.</p>