Alternative Solution to Control Wax Deposition in Low Temperature Reservoirs

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Abstract

Lobitos Field, located in Northern Peru in the Piura Department, is part of the Z2-B block operated by Savia, SA. The mayor oil reserves were discovered in a shallow water area offshore, where the water depth is approximately 200-335 ft.

The predicted production rate varies from 5 to aproximately 400 BOPD. In wells producing by intermitent gas lift, produced fluid has a high wax appearance temperatura (82°F). A dry tree completions is the solution for this field. The wellhead flowing temperature (WHFT) is predicted to be below the wax appearance temperature (WAT) during normal flow without heating.

Under certain specific field conditions, such as the development being considered, downhole anular heaters can be used in order to maintain WHFT above of the oil WAT. This this tecnique solves the problem of deposits both in the oil well production tubing. A new technology used to heat downhole the oil into the well provides cleaning along the tubing.

For maximum effectiveness, the heaters should be integrated permanently into the tubing branch. Upon completion of a well the cold zones, or water zones should be identified on the log. It is in the cold zones that paraffin deposits are most prevalent. The cooler temperature is a catalyst that causes the paraffin to solidify.

After identifying the cold zones the Heater Treater should be installed parallel to the tubing at a point approximately 1- to 200 feet below the deepest cold zone.

The role of downhole heaters in managing paraffin build-up and improving production in oil wells; and many cases will provide the following benefits:

a) Reduced block of perforations by wax
b) Increase oil production when reduce wax precipitation
c) Reduce well interventions by wax cut
d) Reduce operational costs