FluidControl Case Study

International Drilling Services Company Uses POLYTRAXX Solution to Reduce Wellbore Instability, Improve Drilling Times in Challenging Wells

Challenges

- Overcome the difficulty of wellbore instability in operator's wells
- Formations have intercalated reactive clay and non-consolidated sandstone
- J- and S-type wells require low coefficient of friction (COF) and strict control during drilling
- Inability to use oil-based mud (OBM)

Well Information

- Location: Bolivia, Llanos Basin, CPO-06 block
- Well name: Curichi-X10008D

Solution & Results

- Customer sets the objective of drilling the J- and S-type wells to TD with no hole stability problems and minimum damage to reservoir.
- POLYTRAXX™, a water-based mud (WBM) solution, is implemented after extensive laboratory testing
- POLYTRAXX provides a very low COF, minimizing drag problems and saving time during drilling and tripping operations; no NPT related to fluids.
- Washout is reduced to less than 10% overall, saving time and reducing costs during cementing operations, and wells are drilled to TD.
- Operator is the first in the region to drill larger-diameter wells with high inclination in the tertiary formation.

2800 N Frazier Street
Conroe, Texas 77303, USA
Phone: 936 523 2600
Fax: 936 523 2791

Our NOV FluidControl group, part of the WellSite Services business unit, was selected to provide support for an operator's challenging wells in Bolivia. Wellbore instability issues had been a concern on past wells, as plastic and highly reactive clays had plugged the shakers and caused bit and BHA balling. In addition, the new campaign had difficult S- and J-type well profiles, which demanded lower COF and strict directional control while drilling. The main objectives of the project were to drill these wells to TD with no hole stability problems and minimum damage to the reservoir while reducing drilling time and fluid-related NPT.

We conducted extensive laboratory tests with samples from reactive formations, as well as tested different concentrations of products, to determine a solution. The tests revealed that the POLYTRAXX system, a high-inhibition WBM, would be appropriate in this application. The POLYTRAXX system is comprised of four synergistic products. A polyamine-based system provides the primary inhibition, while an acrylamide polymer imparts secondary inhibition and encapsulation. A blend of surfactants serves as the lubricant and ROP enhancer, with xanthan gum functioning as the main viscosifier. The POLYTRAXX system was developed to address varying lithologies and field backgrounds, as well as the mechanical condition of the well and the need to optimize cost and performance when drilling.

Once implemented, POLYTRAXX helped provide a very low COF, minimizing drag problems and saving time during drilling and tripping operations. Washout was less than 10% across all the wells of the campaign, which saved time and reduced costs during cementing operations, and all CSG and liners were run to planned depth. Despite the fact that earlier wells were almost vertical and simpler to drill, using POLYTRAXX still helped the operator reduce overall drilling time in the new wells with challenging profiles. Allowing the operator the ability to drill with different geometries expanded their field development options. These additional options helped to reduce their civil work costs (less pads) and increase overall production by having more drainage area and reservoir contact.

There was no NPT related to fluids, and the wells were drilled in less time than planned. The operator was also the first in the region to drill a larger-diameter well with high inclination in the tertiary formations.