

GWDC Created the Fastest Well Construction Record of Buried Hill Block

Challenges

- Shallow KOP
- easy to shrink and form keyseat

Solution

- Utilization of the drilling tool combination of "PDC bit + 1.5 degree single bend motor + 308 mm ball type stabilizer"
- Customized PDC bits

Results

- Construction period was 91.88 days, 23 days ahead of the planned
- The fastest construction record in the block

Well Xinggu XX, located in Liaohe Oilfield, was drilled by Great Wall Drilling Company. Due to the shallow KOP of the well, the soft mudstone in

23 days was saved

the upper part was easy to shrink and form keyseat, and the sand-mudstone in the lower part had more interbeds, the interface was very unstable, which resulted in change of the hole size. Furthermore, PDC bits was evidenced not to be widely used in Xinglongtai buried hill formation during previous performance, and the cone bits accounted for a large proportion of drilling footage, which affected the improvement of drilling speed.

In order to break the bottleneck of lower drilling speed caused by the bit selection limitation, GWDC set up a technical support front line to carry out risk assessment one by one on key and difficult points of well construction, formulated corresponding risk prevention measures and detailed drilling program. During the directional process, the drilling tool combination of "PDC bit + 1.5 degree single bend motor + 308 mm ball type stabilizer" was adopted to orientate, which combination helped to realize kicking-off operation and keep the hole angle stably at the same time, and continued to drill without replacing the BHA after completion of deviation. After drilling into the Mesozoic and Archeozoic buried hill formations, the customized PDC bits were utilized to prolong the bit service life and increase the penetration rate, the PDC bit footage in this well accounted for 74.94% of the total footage.

The well was completed at 4800 meters with drilling period of 79.33 days, the construction period was 91.88 days, 23 days ahead of the planned, creating the fastest construction record in the block.