

Expro Excellence

HI TOOL[®] improves drilling performance in lateral well with motorized Rotary Steerable System

Well Construction | Drilling Technologies



Objectives and background

- Our customer sought a solution to reduce non-productive time (NPT) and overall rig time as well as prevent bottom hole assembly (BHA) failures caused by high vibration levels while drilling an 8 1/2" lateral on an offshore well
- They encountered consistent high stick slip vibrations and dropped rate of penetration (ROP) while drilling the 8 1/2" section with conventional motorized rotary steerable system (MRSS) BHA
- They initiated trials to adjust drilling parameters to mitigate vibrations and enhance the performance; however, with no success they eventually had to pull out of hole due to Measurement while drilling (MWD) tool failure, which required time and incurred cost to trip out of hole and change tools
- Our customer chose Expro's HI TOOL[®] Harmonic Isolation Tool because offset wells using this solution resulted in reduction in vibration level and more protection of the BHA

Value to the client

- Compared to the 8 1/2" first run, where HI TOOL[®] was not used, the second run with HI TOOL[®] was drilled with a clear reduction in stick slip vibrations. Almost no stick slip was seen until section TD and lateral vibrations remained at low green level (2-3), which is considered low vibrations level on the lateral vibrations scale
- Our solution prevented BHA failures and reduced NPT
- Our customer was able to reach section TD with considerable performance improvement, which was clear in the 98% increase in ROP, 25% reduction in lateral vibrations, and slick slip level at 0 for 96% of the run

Note: Renting/leasing, maintenance and repair services is provided.

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- The 800 Series HI TOOL[®] was placed in the new BHA to mitigate vibrations and enhance overall drilling performance
- HI TOOL[®] is an on-bottom drilling tool that provides optimum vibration and stick slip mitigation, BHA protection, and improved drilling efficiencies
- When positioned above the logging while drilling (LWD) tool, the HI TOOL[®] decouples the drill string from the directional tools in the lower BHA and redistributes the vibrational energy back into the wellbore and away from the BHA
- By protecting the BHA from the vibrational energy, the sensitive electronics in the MWD and in the LWD tools are not disrupted, and the drill bit stays directly engaged to the formation with better efficiency at bit, higher revolutions per minute (RPM), and more flexible control of weight on bit (WOB), resulting in increased rate of penetration (ROP)
- By the improved performance and ROP HI TOOL[®] tool has delivered, the section was completed faster. This eliminated drilling time for the section and reduced generator hours to complete the section, which lowered CO2 emission

Safety



Enhancement



Reduction of rig time



Contact

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