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Montney Operator Overcomes High Shock and Vibration, Drills Three One-Run Sections

HFTO Suppressor tool reduces shock amplitude up to 800%, enabling the drilling of single-run intervals

The HFTO Suppressor* dampening tool, along with the PowerDrive Orbit* rotary steerable system and IDEAS* integrated dynamic design and analysis platform, helped an operator reduce damaging shock and vibration to enable drilling three challenging 6.25-in lateral sections in one trip each.

Minimize downhole tool failures

An operator encountered several challenges while drilling lateral sections in Western Canada's Montney Shale Formation. Most notably, high-frequency torsional oscillation (HFTO) was causing stick/slip, bit damage, cracked drill collars, and more. To improve drilling efficiency, the operator needed to mitigate downhole tool failures while improving footage and ROP.

Reduce HFTO while drilling

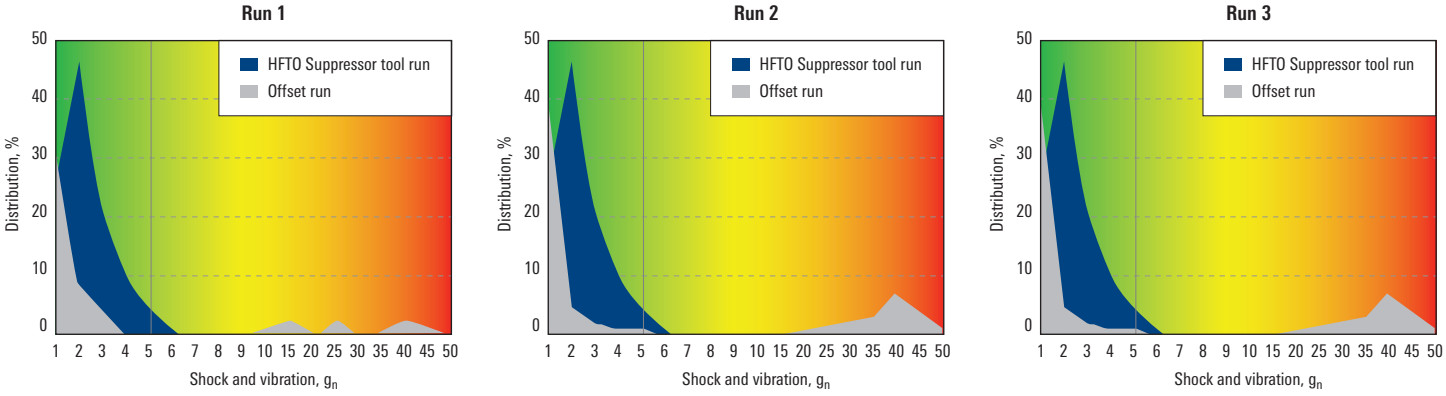
Conventional BHAs did little to address the root cause of the problems—HFTO while drilling. In addition to slow ROP, the high shock and vibration led to costly, time-consuming trips, nonproductive time, and redundant BHAs.

Run optimized BHA

As part of an engineered approach, Schlumberger used the IDEAS integrated dynamic design and analysis platform to reduce HFTO and model different BHA options for the job. Schlumberger recommended the HFTO Suppressor tool in combination with the PowerDrive Orbit RSS to mitigate excessive vibration while drilling. To confirm downhole performance, continuous high-frequency measurement tools measured HFTO throughout all three runs.

Drilled three one-run sections

With the HFTO Suppressor tool incorporated into the BHA, the operator successfully drilled three different lateral sections for a total footage of 30,381 ft [9,260 m]. HFTO was present on less than 1% of the runs, enabling the operator to drill each lateral in one run. Data analysis showed a 200% to 800% reduction in HFTO amplitude compared with offset wells without the HFTO Suppressor tool.



The HFTO Suppressor tool reduced HFTO amplitude by up to 800%, enabling the operator to drill each lateral to TD in a single run.

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