

Expro Excellence

Vibration mitigation with HI TOOL™ in directional underreaming application

Well Construction | Drilling Technologies



Objectives and background

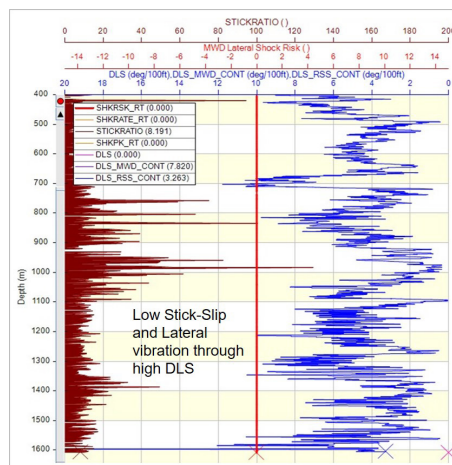
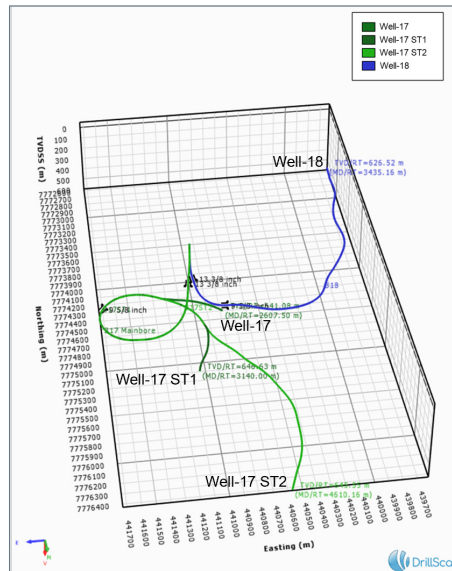
- Expro was contacted by an Australian operator in Carnarvon Basin, for the Harmonic Isolation (HI TOOL™) to support their multi lateral campaign
- The BHA design was kept the same as the previous campaign where the 800 Series HI TOOL™, placed below the underreamer to mitigate lateral and torsional vibrations assisted drilling a 2,490m of 8.5" x 12.25" section reaming-while-drilling in one run

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- BHAs with underreamers have multiple cutting structures, generating vibration dynamics which impacts rate of penetration and BHA durability. To isolate the BHA, Expro recommended placing the 8-3/8" HI TOOL™ below the XR Reamer
- The internal elastomeric "Anti-Vibration Rings" and spherical geared connection of the patented HI TOOL™ dampens vibration transmission and decouples the BHA by allowing minute deflection between the upper body and lower body
- As a result, vibration generated by the interaction between drill bit and underreamer are minimally transmitted along the BHA, reducing the risk of premature failures while improving drill string dynamics to allow better drilling performance especially for the long underreaming sections of this multi-lateral well campaign

Value to the client

- 5 ea 8-3/8" HI TOOL™ utilized during the drilling of 2 wells, across the 8.5" x 12.25" sections and 8.5" x 9.25" tri-lateral sections. The wells build up from 20deg to horizontal 90deg.
- Effective vibration mitigation throughout the large ratio underreaming operations allowed the bit and underreamer to concentrate more input energy into penetrating the formation as less energy is lost due to vibration and negative drilling dynamics. Reaming-while-drilling was smooth in all 4 lateral sections and consistent with the previous successful campaign



Increased productivity

Reduced rig time

Cost effective

Contact

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