

TuffTRAC iX Tractors Convey Selective Perforating Guns in Two >13,000-ft Runs in Complicated Well, Qatar

Intelligent tractors negotiate long, slim, twisted well profile for successful perforating of nine intervals in two runs

CHALLENGE

Perforate nine intervals in a twisted well profile after five attempts with conventional conveyance technology were not able to achieve intervention objectives.

SOLUTION

Use an eight-drive configuration with 16 wheels of TuffTRAC iX* extreme-performance wireline tractors to efficiently deploy selective perforating guns along a more than 13,000-ft run through 4½-in and 3½-in tubing with a challenging crossover.

RESULTS

Successfully negotiated the complicated crossover section to convey two runs of perforating guns to firing depth for nine intervals in a total job time of 4.5 days from rig-up to pack-up.



Conventional conveyance unable to perform in twisted horizontal well

The operator wanted to perforate a well drilled from a jackup rig in a shallow-water oil field offshore Qatar. Although the horizontal well had been drilled and cased and the completions package installed a year ago, subsequent attempts to perforate 10 intervals using tractor-conveyed wireline had not been productive. Only a single interval had been perforated after five rig-ups, each with several attempts. The well's tortuous profile, slim 4½- and 3½-in tubing, and a complicated crossover section that incorporates a packer, sliding sleeve, and ball valve had led to misruns, tractor failures, and even a cut cable incident.

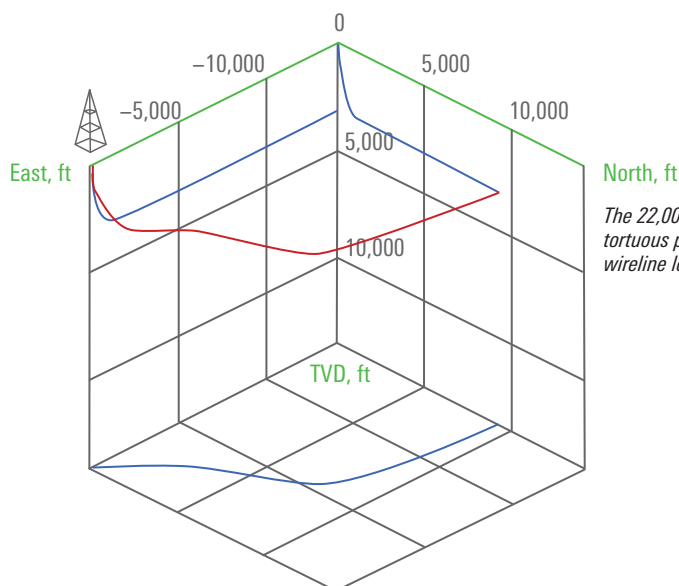
TuffTRAC iX tractors built to intelligently navigate slimhole perforating challenges

Schlumberger proposed conveying the perforating toolstring by using the new 2½-in TuffTRAC iX tractor in a configuration of eight independently operated drive sections totaling 16 wheels. Active traction capability, which integrates real-time monitoring of wheel contact and dynamic tension control, would enable the tractors to easily negotiate the restrictions in the twisted well path by closing drives sequentially as they pass a restriction.

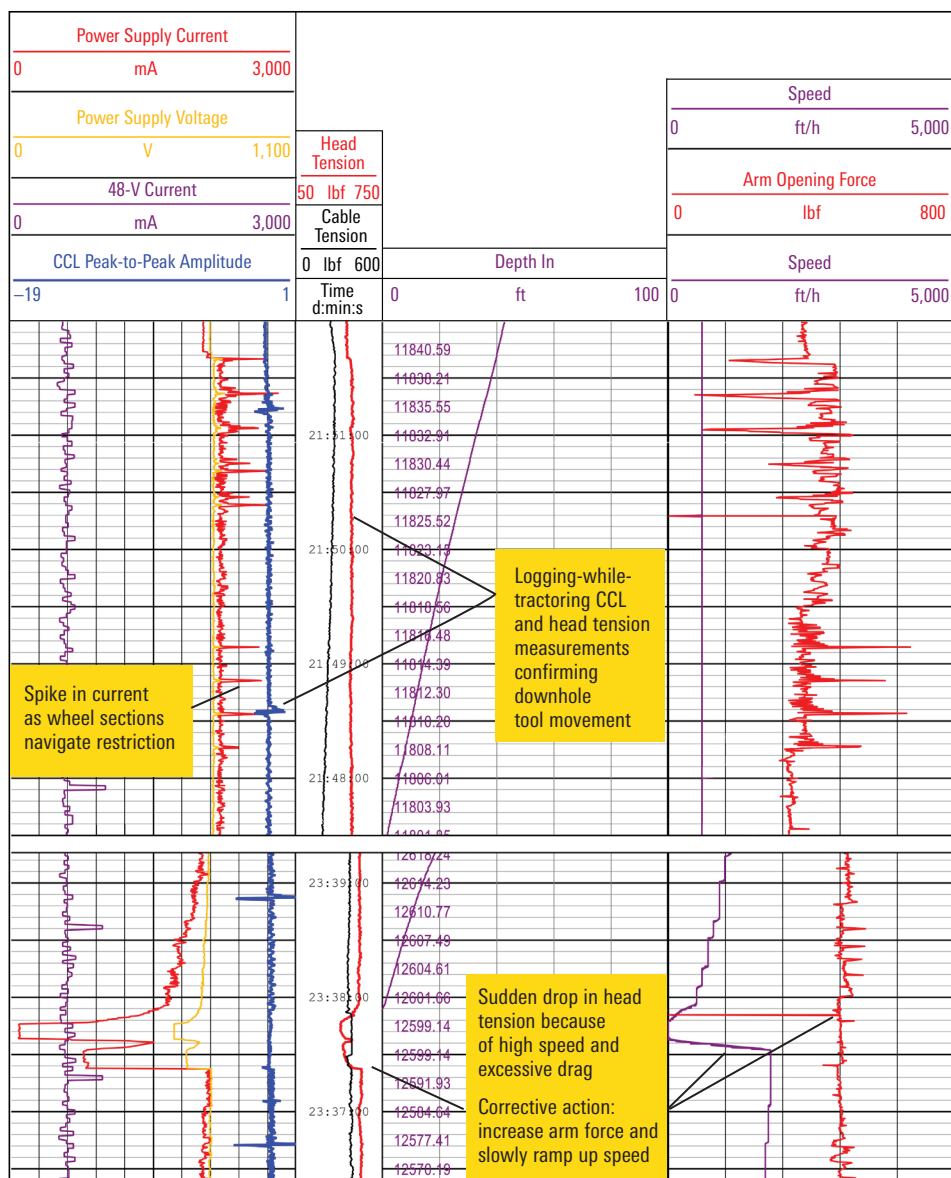
The shock-qualified TuffTRAC iX tractors would also provide the depth control critical for perforating by logging while tractorizing. The built-in gamma ray and active casing collar locator (CCL) differentiate the collars in real time from the less-magnetic tubulars.

Nine intervals selectively perforated in two runs and total job time of 4.5 days

Instead of abandoning the >22,000-ft well, the operator was able to successfully perforate the remaining nine intervals in two descents of selectively fired perforating guns. Each run required tractorizing more than 13,000 ft, which the 16 wheels of the TuffTRAC tractors readily achieved, including navigating the crossover by manipulating each wheeled drive section individually. Once at TD, correlation was performed with the gamma ray-CCL, and the guns were fired selectively at the required intervals. In total from rig-up to pack-up, job time was a highly efficient 4.5 days.



CASE STUDY: TuffTRAC iX tractors enable perforating in long, slim, twisted horizontal well, Qatar



The TuffTRAC iX tractor's full downhole instrumentation increases confidence while tractoring and monitors the high level of tractor control.

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