Case study: Malaysia

Conveyance success in Peninsular Malaysia's deepest well

Our customer had drilled and completed an extended reach well back in 2012. During the drilling phase, an attempt to add additional perforations was unsuccessful due to tractor failures in the technically challenging, hostile well environment. The well total depth was 6681 m, with a bottom hole temperature of 300°F and a deviation of 82°F (ERD ratio 2.72). Furthermore, the well had 10% CO_2, 28 ppm H_2S and 6.4 milligram/cc of mercury. The scope of the intervention to be carried out was to tractor convey perforation guns to target depth to access new production intervals, in turn increasing the production from the well in support of the field sustainability. There had been no intervention done on the well since its completion, adding to the high risk and uncertainty of the operation.

Solution

The use of coiled tubing was not considered an option due to possible coil buckling at these well depths and concern over not being able to provide the depth accuracy required. Instead, our PowerTrac 318 tractor was selected to convey the perforation guns to depth. Tractor tool preparation was of paramount importance, which included pre-job heat testing and the use of Gazguard seals. Seamless collaboration and integration among the client and all the service company representatives involved was also critical before and during the operations, with lessons learned from other operations applied. Back-up PowerTrac Tractors and additional e-line conveyed mechanical tools were also prepared and mobilized, namely the PrecisionCollector 350 for contingency cleanout had the tractor conveyance in the well been hindered by well debris.

Results

The PowerTrac 318 tractor was used throughout the operation providing a total tractoring distance of 50 kilometers over two multi-run campaigns. Tractoring was at times as long as 12 hours due to the extent of the lateral reach of the deviated well section. This enabled the perforation of new zones totaling 74 meters, which resulted in an impressive production increase from the well from 2 MMscfd to 16 MMscfd.

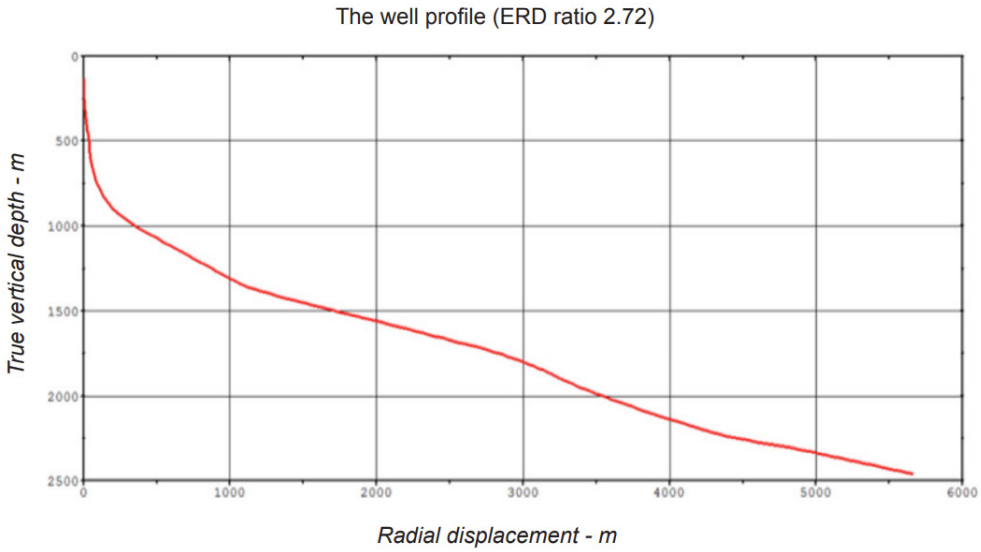
The operations team:
client and service company representatives

Challenges

- Tractor convey perforation guns to target depth to access new production intervals, increasing production in support of field sustainability
- No intervention done on the well since its completion, adding to high risk and uncertainty of operation
- The well total depth was 6681m, with a bottom hole temperature of 300°F and a deviation of 82 degrees (ERD ratio 2.72)

Results

- PowerTrac 318 was used throughout operation providing total tractoring distance of 50 km over two multi-run campaigns
- Tractoring was at times as long as 12 hours due to lateral reach of deviated well section
- Perforation of new zones totaling 74 meters, resulting in impressive production increase from 2 MMscfd to 16 MMscfd



"The team successfully completed a technically challenging job. They demonstrated seamless collaborations and were pushing their technical limits, to complete an additional perforating job and to support ACPE (Accelerated Production Enhancement) plan by Well Intervention & Services for Resak gas sustainability."

M Shamsuri Mahussin, Well Intervention Engineer, PCSBw