

Jafurah Basin 2016 Pad Drilling, Horizontal Pilot, Well Duration Transformation

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ABSTRACT

The Saudi Arabian Oil Company's (Saudi Aramco's) Jafurah Basin Drilling Team was able to significantly reduce well delivery days for a ±17,000 ft horizontal pad drilled pilot unconventional well in the pilot area in one of the areas of the Jafurah Basin in 2016. Well design, drilling practices and parameters were improved to reduce the number of days required for drilling. Prior well design and drilling practices are presented in comparison with newly implemented optimizations. The new approach unveiled the limits imposed on drilling efficiency using historically well designs and conservative drilling practices. Improvements include changing casing points and hole sizes, eliminating drilling liners and completion tiebacks, improving the mud program and bit selection, eliminating unnecessary trips, refuting rate of penetration limiting practices, enhancing bottom-hole assembly design, and revisiting conventional wisdom and beliefs regarding back reaming practices in horizontal wells. These new practices combined for an improvement in horizontal multiple pilot area well pad drilling durations, from 66 days in early 2016 to 29 days at the end of 2016; a 56% reduction in time.