

Short and Medium Radius Directional Drilling Applications and Case Studies

Eric Malcore and Damien Tarpley

Weatherford International

eric.malcore@weatherford.com

More and more of the world's oil fields are getting old. As they age, re-entry becomes a viable option to keep production levels high. Many re-entries have unique well bore / casing restrictions as well as geological restrictions that make small holes with high doglegs mandatory.

Unique geological restrictions can cause the drilling of short radius wells to be essential. Water zones, tight zones, faults and surface location restrictions all create a need to drill a short radius well. This paper reviews several examples of the geological reasons to drill a short radius well.

To drill these wells, experienced staff and the correct equipment are essential to be successful. In short radius well, the most important factor is the experience of the directional driller. This paper will outline the skills necessary to drill short radius wells. The correct fit for purpose equipment is also essential. Collars that can bend sufficiently, connections that won't break and mud motors that can give you the required dog legs are all required.

Proper planning is required to be successful. Creating the right expectations will result in a successful application. Well bore trajectory, BHA planning and modeling and contingency planning will ensure that goals are achieved in a short radius well.

Finally this paper will review several examples of successful wells and what helped them achieve positive results. The examples are from Algeria, KSA and USA.