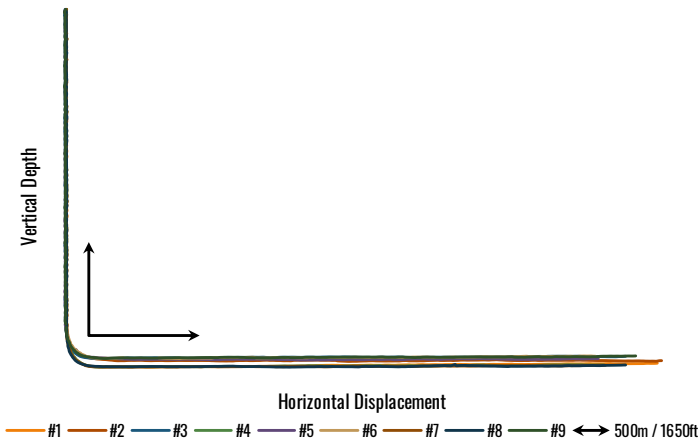


EFFECTIVE USE OF MPD REDUCES DRILLING MUD WEIGHT AND INCREASES ROP BY 69% ON 9 LATERALS OFF A SINGLE PAD

Background

An operator was drilling a 9 well pad in the Western Canadian Sedimentary Basin into a single target formation.

After drilling two wells on the pad conventionally due to scheduling conflicts, over the next two wells, MPD techniques in implemented and then fully applied and implemented on the following five wells.

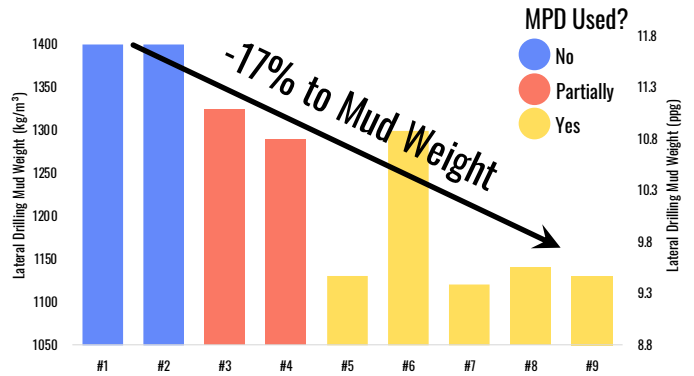


Challenge

In highly fractured regions the conventional use of increased mud weight is required to account for overpressure risk. Without Managed Pressure Drilling (MPD), the use of an overbalanced mud is required to account for the well control risk of encountering known but difficult to locate overpressured natural fractures. As a result of this increased mud weight ROP is reduced.

Solution

Effective utilization of MPD drilling techniques allowed a 17% mud weight reduction in mud weight. The lost hydrostatic from the reduced mud weight is maintained while MPD monitors wellbore flow for signs of an increased pore pressure from natural fractures and applied pressure as needed.

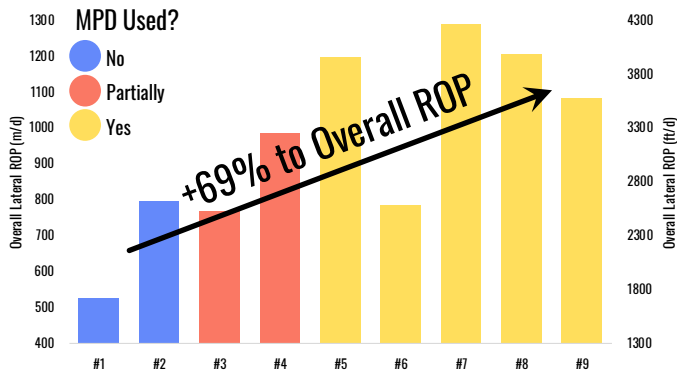


Results

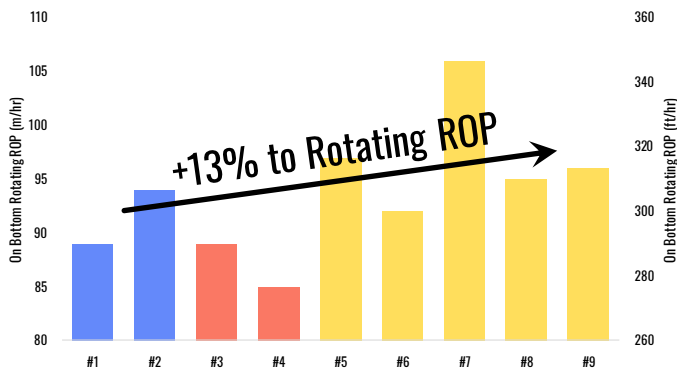
With the implementation of MPD allowing the reduction in mud weight, overall ROP. This increase in overall ROP came in two parts; the drastic increase in tool and bit life from reduced solids content and the increase in ROP from the use of a lower mud weight.

Overall ROP was increased by 69% due to the combination of these factors.

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While overall ROP was increased, the rotating on-bottom ROP in the lateral section was also drastically increased 13% indication that ROP improvements were directly the result of mud weight, and not the result changes to directional profiles and trajectory.



Traditionally, comparisons in ROP well-to-well due to reduced mud weight are not well controlled. In this case, 10 wells were drilled from a single pad into a single, homogenous target formation. Drilling techniques and staffing were kept constant and not a variable.

