

EFFECTIVE USE OF MPD REDUCES DRILLING FLUID DENSITY AND INCREASES ROP WELL-TO-WELL ON 10 WELL PAD

Background

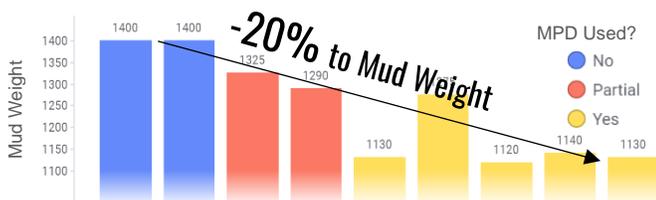
An operator was drilling a 10 well pad in the WCSB. After drilling two wells on the pad conventionally, MPD drilling techniques were applied and implanted on the following eight wells.

Challenge

In highly fractured regions the conventional use of increased mud density 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 highly overpressured natural fractures resulting in reduced ROP.

Solution

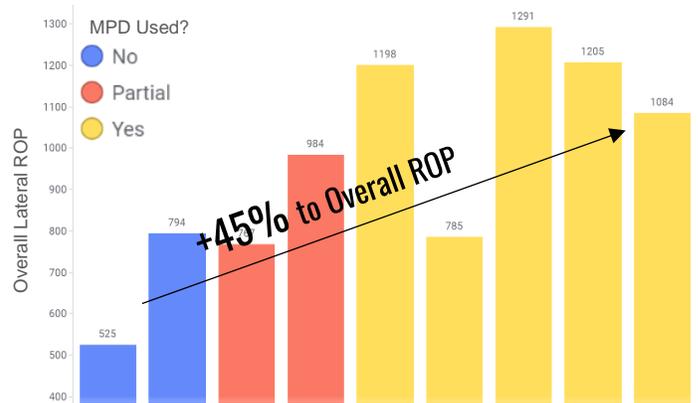
Effective utilization of MPD drilling techniques allowed a 20% density reduction in mud weight. What pressure was lost in hydrostatic from the reduced mud density is maintained while MPD monitors wellbore flow for signs of an increased pore pressure from natural fractures and applied pressure as needed.



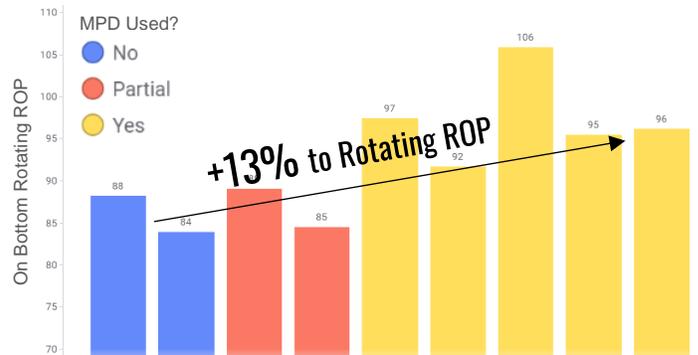
Results

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 density mud.

Overall ROP was increased by 45% due to the combination of these factors.



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 so 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.