PRUITT CASE STUDY

MPD Variations Instrumental in Solving Fluid Losses

Managed Pressure Drilling (MPD) helps drill through conventionally un-drillable severe lost-circulation zones and highly fractured and faulted formations with minimal losses. Constant Bottomhole Pressure (CBHP) and Region of Controlled Pressure (RoCP) sub-variations of MPD, successfully designed and executed by optimizing the surface backpressure in static and dynamic conditions, come to the rescue.

CBHP MPD system with Coriolis meter detected losses in gallons, while the rig's PVT system detected losses in Barrels. It gave several (5+) minutes early warning, and ample time to react in extremely narrow windows (Ex: 0.2 ppg difference between Pore and Leak-off).

CBHP MPD also provided early kick detection, improved ROP, minimized surge and swab issues, and helped with pore-pressure and leak-off prediction, 'drilling with casing' and cementing.

Challenge/Problem: Drilling through highly fractured and faulted formations or formations with lower leak-off / fracture gradient minimizing losses and without inducing any kicks.

Action/Solution: Use CBHP MPD and its sub-variations to drill through the formations by optimizing the surface backpressure.

Execution/Results: Multiple wells (20+) in US and Canada were drilled using MPD minimizing the loss and avoiding kicks. MPD enabled faster reaction because of the info gathered through Coriolis meter.

Details: Multiple Operators in US and Canada used Pruitt MPD services to address severe fluid losses.

1. One operator in WY drilled multiple wells through faults that had a very high permeability and communication across multiple formation layers. The wells were using CBHP and RoCP to reach the target depth. The operator minimized losses and TD all wells. This operator waited several years (>5) to drill in this part of their lease because of severity of losses anticipated.
2. Another operator in WY drilled multiple wells with MPD and used MPD for cementing the production casing. The objective of the operator was to avoid formation losses when circulating the high density cement.
3. Another major in Canada minimized losses when drilling through narrow pressure windows, and avoided kick-loss catch 22.

Typical CBHP MPD Solution