Proactive Managed Pressure Drilling (MPD) by @balance Services minimizes fluid losses and avoids deferred production in active water-flooded field in Colombia

Challenges of an active water-flooded field
The complex interlaying sand structure and the nature of the water injection technique create numerous challenges when trying to conventionally drill these wells. Typically, more than six injector wells must be shut down several days in advance to minimize drilling problems, and they must remain shut down until drilling and completion is finished. Deferred production was identified as more than 4,000 bbls per well when drilled conventionally. Over the past few years, the client had tested various drilling techniques and technologies to eliminate the need to shut down injector wells while drilling new wells; however, they were never successful.

THE CHALLENGE
■ Drill into a water-flooded field without shutting in injectors to maintain field dynamics and productivity
■ Avoid NPT due to kicks and losses common during conventional drilling
■ Minimize formation damage by using light drilling fluid

THE SOLUTION
@balance Services implemented single-phase MPD techniques in three wells to evaluate benefits in this field. Surface backpressure was applied to the wells to control bottomhole pressure (BHP). A dedicated @balance Services MPD specialist and semi-automated MPD equipment were necessary to overcome drilling challenges.

THE RESULTS
■ @balance Services MPD proved to be the most efficient and safest technology to drill new wells in this brown field without affecting field productivity
■ Compared to conventional drilling, @balance Services MPD saved the client 100K USD per well
■ The use of light drilling fluid and the ability to control fluid losses created opportunities to increase well production due to low skin damage
■ The avoidance of well control incidents showed that this technology increases safety for drilling and completion operations

MPD opens a new window for safer and more efficient drilling
MPD well candidates were selected based on the highest injection pressures and the most difficult drilling problems encountered in past wells. Wells were designed to proactively maintain BHP just above any formation pressure while drilling and during
connections. Surface backpressure remained constant for the entire hole section in order to reach section TD with no influxes. Mud rollovers from light to weighted mud were performed following rollover schedules designed by the @balance Services MPD engineers with no losses or kicks observed. @balance Services MPD reduced NPT to 3.5 hours on all three wells with no effect on the field production.