Operator Achieves Record Results in West Africa Deepwater Completions Project

HALLIBURTON EXPERTISE HELPS REDUCE COMPLETIONS TIME, OPTIMIZE OPERATING EFFICIENCY AND RUN RELIABILITY
NIGERIA, WEST AFRICA (OFFSHORE)

OVERVIEW
An operator needed to install upper completions (UC) and lower completions (LC) in the challenging deepwater environment offshore West Africa. Halliburton partnered with this operator to deliver an optimal completions technology solution, leveraging previous completions experience from similar deepwater projects in the same region.

Drawing upon Halliburton global best practices and lessons learned, the customer was able to reduce its LC times by close to 60% – using techniques like stand-alone screens (SAS) and shunted openhole gravel pack (OHGP) technology – while also reducing UC times by close to 40%. Furthermore, well construction durations in this location are now averaging 24 days per well, with UC/LC operating efficiency and run reliability exceeding 98%.

PROJECT BACKGROUND
The field of interest was discovered in the early 2000s with water depths exceeding 1,500 meters (4,921 feet). The development project consisted of both producer wells and water injector wells. Halliburton collaborated with the customer to engineer a completions solution that would address and overcome any challenges. In particular, the operator was faced with shallow horizontal wells with long open holes and complex trajectories, and the need for a reservoir isolation device (RID) prior to running upper completion.

Safety was a primary concern at the project site, so goals to protect workers, operations, and the environment were established upfront: no injuries and no significant health, safety, or environmental (HSE) incidents. Another important goal was to work as a fully integrated team, emphasizing cooperation between both companies to achieve improved operational performance. A major objective was to deliver operations per the agreed schedule, thus ensuring that well completions met the expected production and injection targets as defined by the operator’s subsurface teams.

CHALLENGES
» Deliver best-in-class upper and lower completions to meet project requirements
» Navigate shallow horizontal wells with long open holes and complex trajectories

SOLUTIONS
» Leverage joint deepwater completion experiences throughout West Africa
» Apply Halliburton global best practices and lessons learned
» Use a reservoir isolation device (RID) before running upper completion

RESULTS
» UC times reduced by close to 40%
» LC times reduced by close to 60%
» Completions operating efficiency and run reliability improved by >98%
» Currently running UC/LC consistently in less than 8 days
“Another good job done. Without a doubt, this has potential to be our best development. Keep it up. We must maintain this level.”

– Completion Engineer

“Thanks to your work, this step change in performance is becoming our new reference!”

– Manager, Deepwater Drilling & Completion

PROJECT DETAILS
The following procedures were key to the project’s success:

» Thorough project planning, including Complete-Well-on-Paper (CWOP) exercise for both upper and lower completions
» Torque and drag simulations to minimize/eliminate the threat of damage to the work string and production screens
» FS2 opening and injectivity tests from a rigless intervention vessel
» Risk mitigation through completion program reviews and ongoing risk reassessments
» Critical well reviews (CWRs) carried out on all wells, or on a series of similar wells, to ensure that safety and operational hazards are identified and that suitable control measures are in place
» Selection of the right completion tools and the right technology for the job

PROJECT ACHIEVEMENTS AND HIGHLIGHTS
To date, 21 completions have been successfully installed with zero HSE issues. Operational efficiency and run reliability have both exceeded 98%. Completion times (UC and LC) have been significantly reduced, with upper completions down by approximately 40%, and lower completions down by approximately 60%. Packer selection, FS2, torque and drag simulations, tool reliability, operating procedures, continuity of competent personnel and QAQC efforts highlight the achievements recorded—all of which have contributed to the Halliburton Completions team receiving operator recognition for helping deliver wells in world record time.

Overall, these engineered solutions helped maximize asset value for the customer. In addition to advanced completion technology solutions and applied know-how, these achievements were due, in large part, to team alignment and Halliburton’s high standard of service quality focused on transparency, communication, trust and collaboration.