

## CASE STUDY- 2021- GUYANA

## Deep and Deviated Deepwater Dual TIMELOCK™ RBP Gas Well Suspension

## Challenge

An Operator in South America was performing a deepwater batch drilling and completions program in ~ 6,000 ft. / 1800 m of water. Well integrity is a critical component of these well suspensions and for that reason Archer TIMELOCK™ Retrievable Bridge Plugs, (RBP's), are used in every well because they are qualified as VO (gas-tight) to both API 11 D1 and ISO 14310. The standard drilling program calls for a 10-3/4" x 9-5/8" tapered casing string to be temporarily suspended once run and cemented; the reservoir interval is drilled later. These wells are normally suspended with a tested shoe at a TD of 15-20,000ft. / 46-6100m at a deviation of 75°-85° and a shallow set 10-3/4" TIMELOCK™ VO RBP in vertical casing around 25-3500m / 8,000-11,000 ft.

## Solution

In this gas well, with a TD of over 8000 m / 26,400 ft. at a deviation of over 80° a 9-5/8" drillable plug pre-set whilst being run in the hole. It was pushed to bottom and replaced with a 9-5/8" TIMELOCK™ VO RBP, the primary reason being that a Timelock™ does not require pipe or weight below to set and hold it set at any angle, specifically deviation over 80°. The TIMELOCK™ RBP was set at 7750 m / 25,500 ft. at 81° deviation; then positive and negatively tested to 6,300 psi. The Archer onshore team supported the operation with torque and drag modelling and the operation was performed as predicted without issue. The deep operation was followed by setting a 10-3/4" TIMELOCK™ VO RBP shallow in vertical casing at 4100 m / 13,500 ft., This operation was again performed without issue as normal.

### Repeat Performance

Shortly thereafter another gas well suffered a similar issue and again dual TIMELOCK™ RBP's were run to safely suspend the well. This time the deep RBP was a 9-5/8" TIMELOCK™ set again at 81° deviation and 5700 m / 18,900 ft. The shallow RBP was another 10-3/4" TIMELOCK™ RBP set at 2500 m / 8,200 ft.

## Result

The security and integrity of the well was saved. The biggest saving was in critical path risk on a horizontal gas injector well due to the TIMELOCK™'s reliability.

The alternatives were to set another drillable plug and/or attempt a cement plug in a horizontal hole. The downside being the possibility of debris to clean up as the hole was already clean to move onto the completion phase. The savings would be \$500k - \$2M.

“This is a playbook for future field use”

