

Perforate, Wash, and Cement Option for Dual Casing Saves 66 Hours of Valuable Rig Time

ALTERNATIVE TO SECTION MILLING SAVES USD 247,000 AND MITIGATES HSE RISK

THE NETHERLANDS

CHALLENGE

- » Mitigate risk and cost associated with section milling dual casing to permanently abandon the well
- » Attempts to remediate the annulus pressure were unsuccessful, putting an upcoming P&A campaign in doubt

SOLUTION

- » Recommended a Perforate, Wash, and Cement (*PWC®) option

RESULT

- » Created rock-to-rock barrier in dual casing using PWC technology
- » Using Halliburton 5¾-in. 18 SPF guns resulted in the required flow rate of 1,400 l/min
- » Conducted combined operations in less than 50 hours
- » Saved valuable rig time of approximately 66 hours (valued at USD 247,000) compared to section milling and cementing the dual casing

OVERVIEW

A conventional choice for dual-casing well abandonment often involves section milling. An operator had experienced several failed attempts to remediate the well annulus, which put plans for a plug and abandonment (P&A) operation in jeopardy. The operator reached out to Halliburton and HydraWell for a solution. Using the recommended Perforate, Wash, and Cement (*PWC®) method, the customer was able to perform its P&A, saving valuable rig time and taking away its exposure to HSE risk from debris handling and well control.

CHALLENGE

An operator needed a way to mitigate the risks and costs associated with section milling dual casing (7 in. and 9½-in.) to permanently abandon the well. Multiple past attempts to remediate the annulus pressure (for example, perforating and squeezing cement and running a 7-in. scab liner) were unsuccessful. All attempts failed to deliver the required results for the customer, placing an upcoming plug and abandonment (P&A) campaign in jeopardy.

SOLUTION

Halliburton and HydraWell recommended that the PWC option was the best solution for this well. With extensive collaboration between the customer's drilling team, Halliburton TCP, and HydraWell, it was concluded that running a 5¾-in., 18 SPF perforating system was the best fit for this operation.

RESULT

A TCP gun string containing 165 ft of 5¾-in., 18 SPF guns was run in the well and initiated with the hydraulic actuator firing head. A clear indication was received that the guns had fired. Prior to pulling the guns to surface, an injectivity test was conducted to verify that the flow rate for the PWC method could be achieved. With no problem, a flow rate of 1,400 l/min (9 bbl/min) was achieved. Guns were brought back to surface and laid down. The HydraWell bottomhole assembly was then deployed to wash the perforations clean of any loose cement, debris, and other fines left behind in the annuli. After washing, the cementing operations began to create the final rock-to-rock barrier seal in the annuli and solid cement plug in the well. The combined operations were conducted in less than 50 hours, saving valuable rig time of approximately 66 hours, valued at USD 247,000, compared to section milling and cementing the dual casing. Additionally, using the PWC method eliminated the HSE risk from debris and well control issues.

*PWC is a registered trademark of HydraWell

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