

CoilTOOLS Tools and Solutions Enable Gulf of Mexico Operator to Efficiently Reabandon High-Risk Well

Coil Tubing Services uses 2⁷/₈-in CT to remove surface and bridge plugs, relieve sustained casing pressure, and place new cement plugs to abandon a well in 72 hours

CHALLENGE

Perform reabandonment of a Gulf of Mexico well with sustained casing pressure and well control challenges.

SOLUTION

Deploy CoilTOOLS* CT intervention tools and solutions using larger-OD CT with a robust, stabilized milling system to efficiently remove surface plugs and prepare for reabandonment.

RESULTS

Successfully removed the cement plug and cored through the bridge plug in less than 72 hours compared with several additional days using a rig.



Trapped pressure in large casing complicated well abandonment

An operator had temporarily plugged and abandoned (P&A) a well in 2010. Since then, the well's sustained casing pressure reached as high as 460 psi [3.2 MPa]. The operator was able to eliminate the pressure, but it gradually built back up to 200 psi [1.4 MPa]. After the lease expired, the operator needed to permanently reabandon the well. However, the trapped pressure presented well control challenges, preventing the operator from using a rig for P&A.

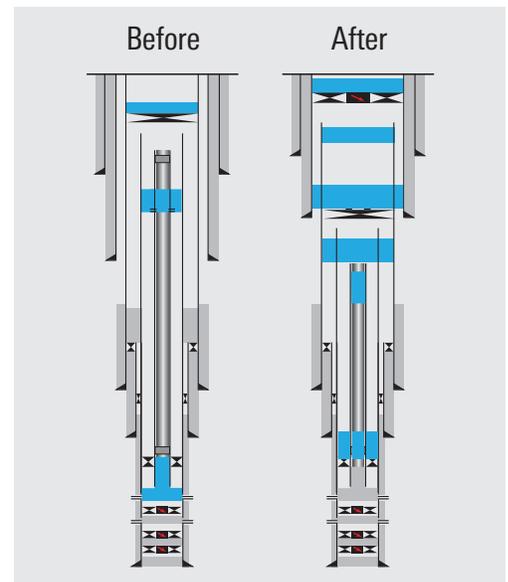
Creative CT solutions enabled efficient plug removal

Coil Tubing Services, a Schlumberger company, used CoilTOOLS CT intervention tools and solutions to develop an innovative P&A strategy. With this strategy, Coil Tubing Services recommended 2⁷/₈-in CT with a positive displacement motor to remove the surface cement plug and core through the bridge plug to relieve trapped pressure. To ensure debris circulation out of the 11⁷/₈-in casing and prevent stuck pipe, a multicycle circulation valve was included in the bottomhole assembly.

Once pressure below the plug was relieved and the well was killed, the operator used a rig to pull the remaining bridge plug and latch onto the 3¹/₂-in tubing. From there, a 1¹/₄-in CT unit was deployed to drill out the cement plug in the 3¹/₂-in tubing, displace the well to water-base mud, and place new cement plugs to reabandon the well.

Operator removed plugs in 3 days instead of several additional days

Unlike rig joint pipe operations, CT work can be conducted in live wells without having to overestimate the hydrostatic pressure required to overcome potential trapped pressure behind a plug. Large-OD CT pipe in conjunction with CoilTOOLS tools and solutions' ruggedized milling and bridge plug coring assemblies enabled successful reabandonment in large casing while maintaining pressure control, where previously the operator had only used jointed pipe. Therefore, Coil Tubing Services was able to remove the surface cement plug and core through the bridge plug as planned in less than 72 hours. Similar operations with joint pipe in a rig would have lasted several additional days with a higher HSE risk exposure. The well was reabandoned in compliance with federal regulations.



A 200-ft cement plug and cast iron bridge plug were removed from the well (left). After placing a 325-ft intermediate cement plug in the 3.5-in tubing (right), the cut tubing was latched with an entry guide to remove the plug. After gaining access to the wellbore, noncompliant fluids were replaced with water-base fluids, new intermediate plugs were placed, and new plugs were pumped in position to isolate all previously uncemented annuli. The well was reabandoned in compliance with federal regulations.

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