TAM INTERNATIONAL

Zone Abandonment with E-Line Inflatable Bridge Plug Provides Work-Around for Platform with Coiled-Tubing Access Limitations

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Abstract
An operator working in the North Atlantic off the coast of Newfoundland, Canada required a downhole barrier to permanently abandon a set of depleted perforations. Platform limitations restricted the use of traditional methods to abandon the zone located in a nearly horizontal lateral well. The operator elected to set a high expansion inflatable bridge plug on wireline in a highly deviated section and spot cement on top of it to abandon the zone.

There were several challenges involved in this application including the requirement for the bridge plug to expand by more than 200% of its run-in diameter due to wellbore restrictions and deviation. E-line was required to provide power for the wireline tractor because a coiled tubing unit could not access the well slot due to the positioning of the rig on the platform. Additionally, the bridge plug had to withstand a 3,000 psi differential pressure test and hold for several weeks without the aid of cement until coiled tubing could be deployed to place cement on top.

The plug was successfully set and held the required pressure. Three weeks after, the platform derrick was moved to another slot and coiled tubing access was again available. The plug was again tested to 3,000 psi and cement was placed on top of it to establish a permanent barrier. A high expansion inflatable bridge plug setting system run in conjunction with a wireline tractor provided an optimal solution for this application.

Using this inflatable bridge plug setting system in conjunction with a wireline tractor represented substantial savings in rig time and operational costs. The operator was able to perform all necessary integrity tests to confirm hydraulic isolation and successfully abandon the zone. The bridge plug deployment system is capable of pumping downhole wellbore fluids to set the plug without a coiled tubing unit or pumps on location. E-line was used to support the tractor through high deviation however; the bridge plug deployment system can alternatively be deployed on slick-line or with a coiled tubing tractor.

Complete paper