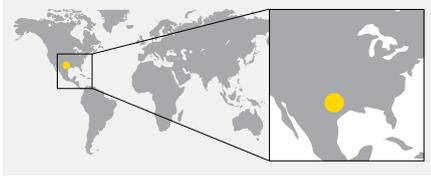


Stronghold Barricade™ System operation successfully executed in US Land to P&A well using alternative plugging materials



Region: North America
Customer: Major Operator
Field: US Land
Well type: Oil Producer

Case benefits

- Eliminates the need for casing milling or cutting and pulling tubulars
- Efficient cleaning of annulus with standpipe pressure as key performance indicator
- High circulation and rotation rates for efficient well cleaning
- Reduces operational time and cost
- Provided a clean annulus to effectively place alternative plugging material

Key capabilities

- Field Proven in 120 operations globally
- High circulation rates
- Dual Heavy Duty Swab cup design
- High Performance Swivel

Typical Applications

- Permanent plug and abandonment (P&A)
- Slot Recovery
- Workover
- Remediate annulus pressure

Challenge

A Major operator in the United States wanted to permanently plug and abandon a well utilizing two alternative plugging materials. The challenge was to efficiently clean the annular space of the well to set and verify the barriers. The well was required to be plugged due to the fact that the primary casing cement job did not cover the safe water zone close to surface.

Solution

The solution was the Archer's field proven Stronghold Barricade System. The system has been run in over 120 permanent plug and abandonment, slot recovery and workover operations globally since 2010.

The Stronghold Barricade System utilizing a dual heavy duty swab cup system to divert all the impact force of the mudpump horsepower across one area at the time. This provides a high annular velocity in the annulus outside the casing making the washing operation very effective. One of the main benefits with this system is the fact that the Stronghold Barricade System straddles a limit set of perforations. By doing that the system directly communicates with what is on the backside of the casing, and the standpipe pressure will give you a hydraulic indication of the annular conditions. A high standpipe pressure will indicate a high amount of debris in the annulus, and a low pressure will indicate a low amount of debris in the annulus. The main performance indicator during this operation is the standpipe pressure decline in combination with debris coming over the shaker system.

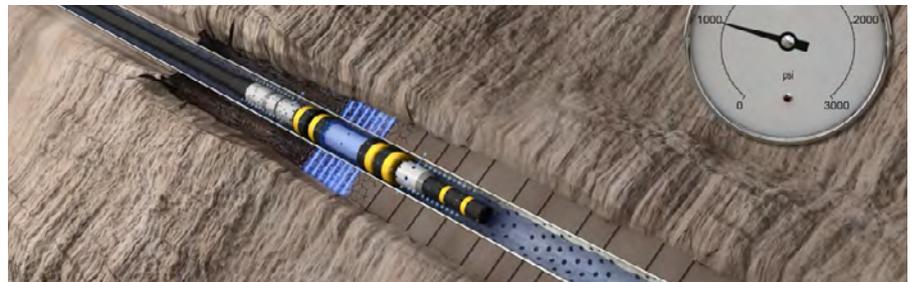
The first step of the operation was to run a Cement Bond Log to determine the optimum area to place the two barriers based on the Stronghold Barricade Systems operational window. The well was then perforated and the washing operations could commence.

The two zones were washed with positive indication on both declined standpipe pressure and debris coming over the shaker system. This enabled the operator to effectively place the alternative plugging material into a clean annular space provided by the efficient Stronghold Barricade System.

The verification of the barriers where conducted using a set of gauges below a bridge plug. Pressure tests were conducted successfully, and the bridge plug was retrieved and the data successfully collected.



STRONGHOLD™
Permanent Caprock Integrity



Result

The Stronghold Barricade System provided annular communication across the perforated area and allowed the operator to validate the plugging materials. The successfully executed Stronghold Barricade System operation saved significant time and cost by eliminated the need for milling or cutting and pulling of tubulars. The successful operation provided a robust blueprint for the future.

Archer is a global oil services company with a heritage that stretches back over 40 years. With a strong focus on safety and delivering the highest quality products and services, Archer operates in 40 locations over 19 countries providing drilling services, well integrity & intervention, plug & abandonment and decommissioning to its upstream oil and gas clients. **We are Archer.**

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