

RockSolid™ barrier system is a success. Major breakthrough for the Oil&Gas industry

Date: August 2021

Region: North America - land



Key Capabilities

- Rigless P&A
- Single run deployment
- RockSolid™ barrier removes casing and cement, replacing the problem area with a custom designed thermite.
- Removes the need for section milling/casing removal and perforation
- Verified gas tight by bubble test (no gas exhausted from annulus vent)
- Time of operation; less than 1 shift (12-hours)
- Debris tolerance

Challenge

One operator in Canada had experienced multiple challenges on one of their wells with severe SCVF (Surface casing vent flow) issues of approximately 13.5 m³/day. Several attempts with different existing technologies had been made without success in order to stop the sustained casing pressure / surface casing vent flow. Shutting off the flow of hydrocarbons is a requirement by regulators before being allowed to abandon a wellbore. Conventional methods to shut off the flow of gas are unreliable, have poor longevity, and are time consuming operations.

Solution

The Interwell P&A RockSolid™ tool utilizes an in-house engineered THERMIT® mixture to remove casing and annular cement while, in the same run, creating a gas tight barrier through the entire cross-section of the well, against hydrocarbons flowing from below. THERMIT® is an exothermic material which releases large amounts of energy (heat) when ignited from the surface through the e-line cable.

In December 2020, the tool was successfully run in hole to a pre-defined setting depth adjacent to competent caprock, before initiating the reaction in order to melt the surrounding well elements. An extensive verification process was initiated post operation to verify that we had established a rock-to-rock barrier. The annulus was continuously monitored for gas flow for several months and the results were immediate.

The flow rate continued to decline over the next weeks before falling below a measurable threshold (less than 50 l / 13 gals of gas per day). Subsequent pressure buildup indicated no pressure on the annulus side. The gas flow was finally confirmed shut off by passing a bubble test in June 2021 (no bubbles from annulus vent over 15 minutes).

Value Created

The RockSolid™ barrier seals the inside of the casing and creates a gas tight barrier where the caprock is restored to its original integrity, permanently, across the well's cross section, sealing both vertically and horizontally.

Providing a fast and cost-effective solution to a major challenge in the O&G industry.

