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

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 thermite 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. Thermite 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.

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Solution (continued)
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™ technology marks a new era in rigless plug and abandonment.

The RockSolid™ barrier not only seals the inside of the casing but 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.

The RockSolid™ barrier is a fast and cost-effective solution to a major challenge in the O&G industry and aims to be the leading technology within the rapidly growing plug and abandonment (P&A) realm.

Key Capabilities (cont.)
• 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)