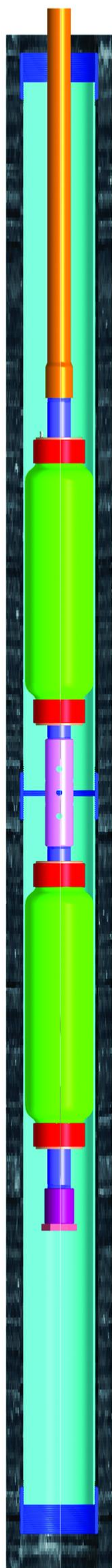


Casing Integrity Testing



Casing integrity testing involves the testing of an entire borehole via a single packer or via a straddle packer system allowing the testing of specially selected zones. Both methods provide reliable results with the use of each system dependant on the situation. The reliability of casing is extremely important for many reasons including support for the drilled hole, prevents fluid loss into or contamination of production zones, provides a smooth surface for installing production equipment, allows the flow or production of oil & gas wells without leakage into the formation through the well.

The type of casing installed into a freshly drilled hole is dependant on downhole conditions. Steel, and in recent years PVC has become more common especially in water wells. Diameter of the well, pressures and temperatures throughout the well, high or low pH levels (may become corrosive), Dissolved solids such as salt may also become corrosive to steel casing. Poor earthing of downhole pumps will cause rapid corrosion through electrolysis as the current finds the shortest possible path to earth (steel casing). Dissimilar metals in an electrolyte such as salt water will also cause galvanic corrosion. PVC is resistant to pH corrosion, electrolysis and galvanic corrosion.

Choosing between steel or PVC is dependant of the above issues however even if the correct choice of casing was taken there still may be problems with the integrity of a borehole such as human error or unforeseen circumstances. PVC must be installed correctly to retain its integrity, this creates a problem where drillers are under strict time constraints to finish a borehole. Common problems with PVC installation are related to the joins whereby a thread and o-ring are used to seal, the o-ring may be forgotten or the thread miss-aligned. Also sealing problems occur in socket and glue joins where bad glue has been used or seating issues between the casing.

Casing integrity testing with a single packer is performed by lowering a single inflatable packer to the desired depth, inflating the packer to create a seal. At the surface a bulkhead or other sealing mechanism is required. Water is then pumped down to a predetermined pressure, a leak is thereby determined by a pressure drop. Identifying where a leak is coming from is as simple as starting at the bottom of a borehole and slowly raising the packer performing tests on the way up.

Straddle packer systems are also incorporated into casing integrity testing where two packers are lowered down a borehole with a perforated pipe creating the straddle. The straddle pipe length may vary with standard lengths from 1m – 6m. Once the packers have been inflated water is pumped down under pressure to the 'straddle zone' typically located over joins in casing and any specific leak locations as identified by downhole cameras.

Replacement Inflatable Packers and Elements Pty Ltd
29 Wheeler St Belmont 6104, Perth Western Australia

Tel: (+61 (08) 9475 0700 Fax: +61 (08) 9475 0770 packers@ripe-packers.com www.ripe-packers.com
Manufacturers and Suppliers of Inflatable Packer Systems for Casing Leak Detection, Casing Integrity Testing,