Mechanical Integrity Testing with the SPIDR® Gauge System

Mechanical Integrity Tests (MIT) on producing wells and disposal wells are required by both state and federal regulatory authorities. Both authorities are seeking assurance that well bore fluids cannot migrate to strata from which the well is intended to be isolated. This is accomplished by subjecting the well bore, any annuli and isolation hardware such as packers to pressures at or above the maximum design pressure.

While Halliburton’s SPIDR® system was initially developed for traditional pressure transient testing, we realized early on that operators had many other applications for recording high precision pressure data. That is why the SPIDR® gauge was designed with the ability to simultaneously record up to three separate pressure data points. In addition to the SPIDR® gauge’s internal precision dual quartz pressure transducer, the SPIDR® gauge can also read two external pressure transducers that can be attached to any pressure source. In this manner, up to two of these external transducers can be connected to a single SPIDR® gauge, enabling you to record three data points simultaneously at a rate of 1 sample per second. The diagram below shows an example installation of a SPIDR® gauge with two external transducers.

Using this type of arrangement operators can easily measure casing, tubing, and annulus pressures. By cycling the pressures in the tubing and the various casing annuli, the operator can determine whether communication exists between these elements and the surrounding formation.

The SPIDR® gauge is portable, weather proof and self-powered and can be used to measure almost any pressure source including pressures over 20,000 psi. In addition to pressure we also have the ability to measure differential pressure, temperature, injection rate or any other process that generates counts, such as a turbine flow meter or a pump meter. The SPIDR® gauge can be used as a portable high precision data recorder to satisfy almost any need. If you are interested in a customized solution contact us and explain your needs. We can configure a SPIDR® gauge to meet almost any data acquisition requirement.

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