Precise diagnosis and cure technology delivers fast and effective well remediation, avoiding costly recompletion.

**Challenge**

Abnormal annular pressure indicated tubing to annulus communication between the 4 1/2” tubing and 9 5/8” casing of a gas producing well operated in the Dutch sector of the North Sea.

Pressure testing determined the location of the integrity failure to be somewhere in or above a safety valve located at 152m measured depth. The client initially suspected that corrosion was the cause of the leak and that a workover would be required to restore well integrity. However, more detailed diagnostics were required to develop and target an effective remediation program.

**Case study:** LeakPoint

**Region:** North Sea

**Well type:** Offshore gas producer

**Case benefits**

- Rapid and precise location of integrity failure
- Targeted remediation
- Optimum remediation solution identified

**Key capabilities**

- Fast, highly accurate location of single or multiple leaks.
- Locates leaks through tubing in A, B, & C annuli
- Sensitive to a wide range of leak rates: 0.02 to > 5,000 l/min
- Clear, unambiguous log response
- Proven effectiveness. Pinpointed leaks in >90% of wells surveyed
- Confidently select and target the most effective remedial intervention
- Able to conduct logging while the well is producing or injecting

Temperature log across the failure zone could not resolve the exact nature or location of the leak.
Case study: LeakPoint

Solution
A LeakPoint survey was undertaken to identify the precise source and location of the leak. Dynamic logging clearly revealed a leak signature at a pup joint at 35m. To verify the exact location of the leak, stationary logging was then carried out over the leak site. LeakPoint's 10cm vertical resolution was able to clearly identify a thread leak in the connection between two pup joint’s, rather than corrosion, as the cause of the abnormal annular pressure. Based on the data gathered by the LeakPoint survey, a pressure activated sealant was utilized to seal the leak.

Results
At the end of the combined three day operation, pressure testing confirmed no annular pressure anomalies and well integrity was fully restored. The rapid and precise nature of the LeakPoint survey allowed the client to confidently select and target pressure activated sealant as the most effective and efficient remediation. This significantly reduced non-productive remedial time and prevented the client from undertaking an unnecessary multimillion pound recompletion.

Increased accuracy of the ultrasonic data, revealing the precise location and nature of a thread leak in a pup joint at 35m.

Typical applications
- Clear identification of specific gas lift system component failures
- Integrity confirmation of complete gas lift systems
- Verification of gas lift valve operations in relation to design parameters

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