

Case study: LeakPoint®/A10

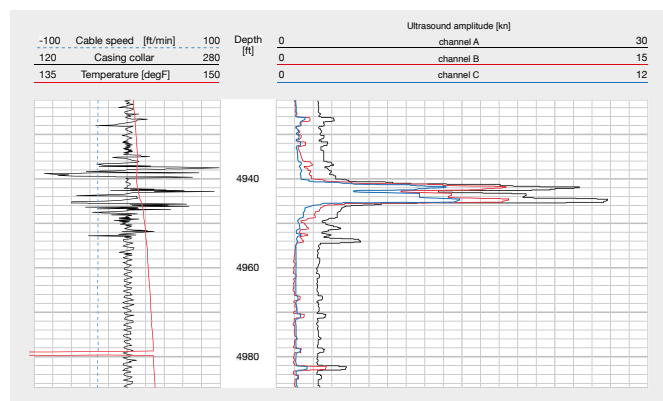
Identifying failed gas lift valve eliminates wasteful mass replacement

Challenge

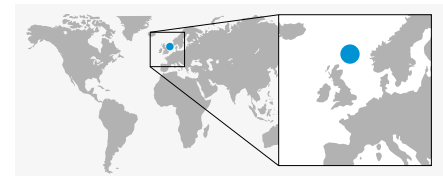
A well operated by a major international oil company in the UK sector of the North Sea had failed a well integrity test. A tubing-to-A-annulus communication was above the maximum allowable rate as defined by the operator's integrity management procedures. As a result, the well had been placed on a time-limited dispensation in which production could continue while a solution was sought to fix the leak.

The operator suspected that the cause of the leak was associated with the gas lift system, installed to optimise production. However, there were at least seven possible failure paths in this system, one for each gas lift valve (GLV). In these situations, some operators adopt a mass replacement strategy, but this is disruptive, costly and time consuming. And if the GLV's are not leaking, this strategy would not solve the problem.

This operator was keen to locate the failure efficiently and cost-effectively so the correct remedial action could be targeted with confidence.



Leak at gas lift valve. The temperature log responds slightly at the leak point but lacks clarity and precision.



Region: North Sea, UK
Well type: Gas lift oil producer

Case benefits

- Identifying failed GLV rapidly and accurately, avoiding wasteful mass replacement strategy
- Optimising use of resources and avoiding risk of new leaks
- Identifying a second, unexpected leak in the tubing, thereby enabling a more complete diagnosis and remediation
- Rapid verification of remediation
- Restoration of safe production and removal of time-limited dispensation

Key capabilities

- Locates barrier leaks downhole rapidly, accurately, clearly and completely
- Two LeakPoint options, /A10 and /A30 according to complexity of failure
- Tiered pricing linked to complexity minimises cost of diagnosis
- Evaluates sealing performance of well barriers and complements other integrity management procedures
- Enables confident decisions and better-targeted remediation
- Independent validation of remediation treatment or P&A
- Mitigates integrity risk

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Solution

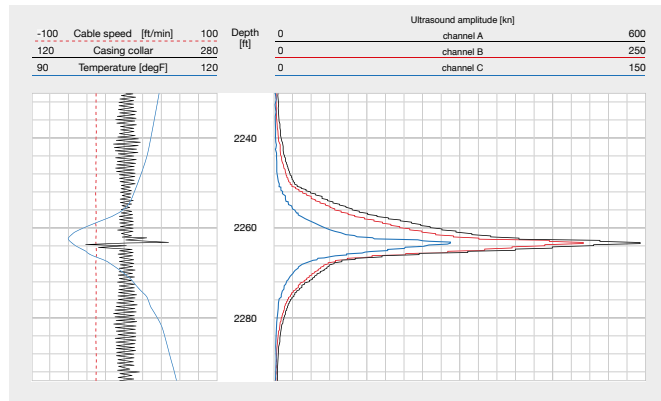
Observations at surface indicated a primary barrier leak, so a LeakPoint/A10 programme was selected to locate the failure downhole. In order to enable diagnosis and remediation in the same campaign, the operator mobilised a dual slickline/electric line unit, complete with gas lift valve (GLV) replacement capability. This included wireline settable straddles as a contingency in case the leak was not related to the gas lift system.

Results

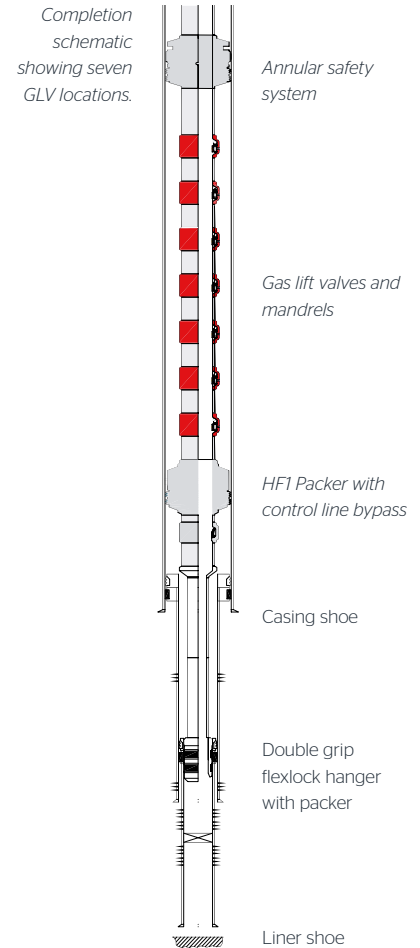
Two primary barrier leaks, one unexpected, were located after a single intervention with the LeakPoint/A10 logging platform. One leak was related to a GLV, the other identified within a tubing connection some 2,300 ft above the gas lift system. This information was presented to the operator at the well site and the decision was made to replace the leaking GLV before setting a straddle across the leaking tubing connection.

The GLV was successfully replaced, verified by a second run with the LeakPoint/A10 logging platform and a straddle set across the leaking connection. The additional verification run was essential as the restricted internal diameter of the straddle would have prevented access to the gas lift system after setting. Finally, following the remedial work, well integrity was confirmed and verified at surface before returning the well back to full production.

In using the LeakPoint/A10 programme, the operator avoided the wasteful replacement of healthy GLV's, and was able to implement a comprehensive remediation strategy for the well, saving time, money and resources.



The diagnostic programme located a second unexpected leak at a tubing joint 2,300 ft above the gas lift system. This enabled the operator to complete the remediation program in a single campaign, saving time and resources.



The **Point®** system
A proactive and systematic approach to integrity management.

- Check**Point®**/A10 ●
- Check**Point®**/A50 ●●●
- Check**Point®**/A70 ●●●●

SURFACE **INVESTIGATE**
DOWNHOLE **LOCATE**

- Leak**Point®**/A10 ●
- Leak**Point®**/A30 ●●
- Flow**Point®**/A50 ●●●
- Flow**Point®**/A70 ●●●●

For more information visit archerwell.com/point or contact point@archerwell.com

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