



CASE STUDY

Innovative realtime solution for high precision leak detection in Alaska

The Challenge

An independent energy company operating in Alaska discovered a suspected tubing to inner annulus leak (TxIA) on a gas injection well on the North Slope.

The leak rate was very small – only 150 psi/day of IA build up and a <0.01 gallon per minute equivalent liquid leak rate.

READ has been successfully supporting operators in Alaska since the 1990s, previously through PDS which we acquired in early 2019. Based on our strong track record in well integrity evaluation and leak detection, and our depth of experience working in the Alaskan oil and gas market, the client engaged with us to develop an innovative solution that would locate the leak with pinpoint accuracy.

The Solution

We proposed performing two runs in the well using Archer acoustic LeakPoint® technology, which is a powerful and proactive diagnostic system for well integrity management that can be logged dynamically and stationary. Working in close collaboration with the customer, we wrote a custom logging program for the well including baseline and dynamic passes with supporting stop counts.

Despite the remote location of this operation, we provided realtime equipment that can be deployed on any vendor's wireline unit. We performed all passes in realtime and saw no indication of a leak until very close to the surface.

READ's highly skilled field engineer identified a weak acoustic signature coming from a suspicious cross-over. This had previously been identified as a potential leak path during pre-job discussions.

Because the acoustic leak was extremely faint, our engineer performed another, slower pass over the zone along with stop counts to successfully pinpoint the leak.

The technology deployed is sensitive to a wide range of leak rates, with no logging parameters to change based on leak size.

Client Overview

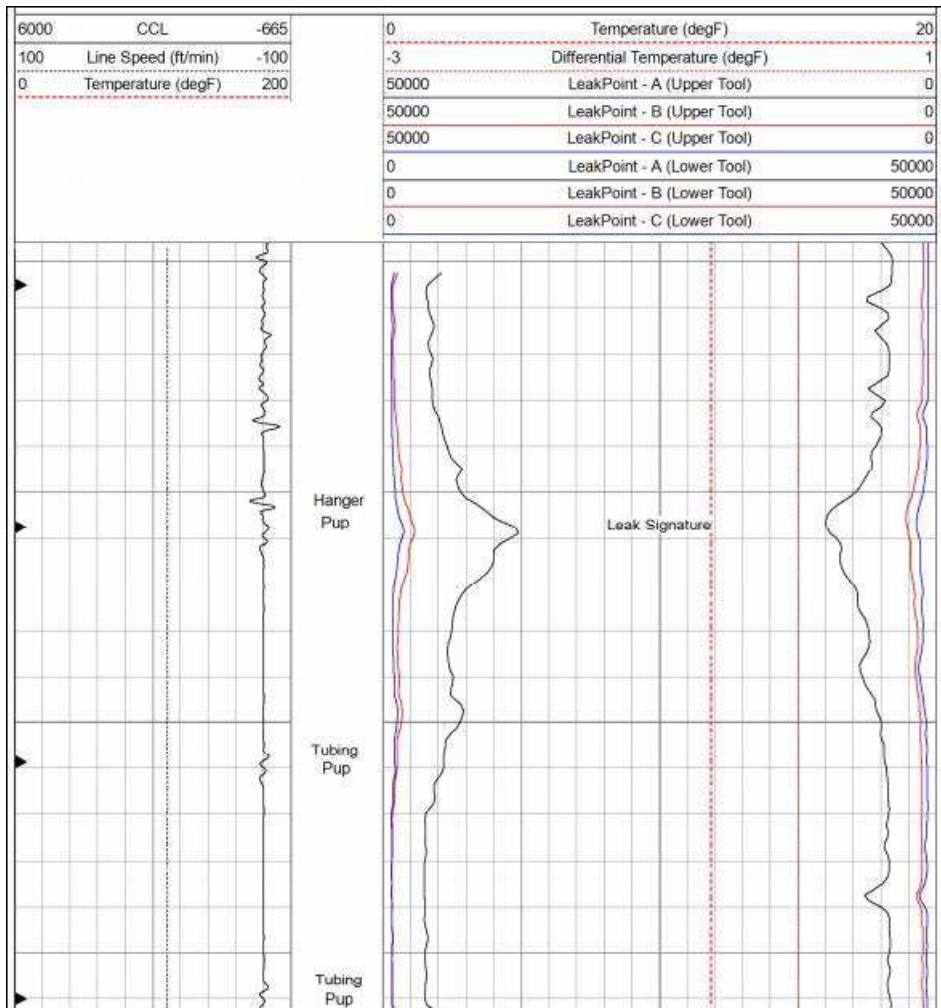
**Independent energy company
North Slope Alaska**

Services

- Tubing to inner annulus leak detection
- Expert data analysis

Technology Involved

- Archer acoustic LeakPoint® system



Data analysis report indicating increasing acoustic signal. The LeakPoint® technology is resistant to road noise due to measurement at higher frequencies.



The Results

The realtime data provided instant results at the wellsite and avoided any processing delays. We also had the log data reviewed by qualified, independent log analysts for confirmation. The data clearly showed an increasing acoustic signal from both the upper and lower LeakPoint® tools as they passed the leak.

No other leaks were identified in the final report and the customer had the accurate data it needed to develop an action plan for repairing the gas leak.

Thanks to READ's extensive portfolio of downhole technologies, which are combinable with the Archer LeakPoint® system, and our flexible and highly responsive teams both in the field and at our technology and data hubs, we delivered an insightful and value adding solution to the client.

Key Results

- Realtime hard-to-find leak detection for in-field decision making
- Ultrasonic energy measurement with exceptional 4" depth resolution
- Targeted remedial action based on high-precision data analysis

