Pipeline Hybrid Leak Detection System

A pipeline Hybrid Leak Detection System (HLDS) is a combination of discrete Leak Detection Systems (LDS) approaches utilizing different methodologies and technologies to address the challenges of pipeline leak detection and leak location. In an HLDS, each system will generally have its own advantages and weaknesses, creating overlapping synergies between the different systems to create a more redundant, robust, reliable, and accurate whole system solution.

The value of an HLDS can be often be better understood when looking at individual LDS approaches:

- Approach A may be very sensitive but not very accurate and generate too many false alarms
- Approach B may be robust but not very reliable
- Approach C might be very fast but does not give any information about the magnitude of the leak event or precise information on leak location
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System Overview
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Using multiple systems addresses the “human factor”: confirmation from independent systems provides confidence and support information to the pipeline operator, who can act without delay. This perspective is already being incorporated into governmental regulations and is being specified by large operators to reduce risk.

Increasingly, the scope and magnitude of the liabilities associated with leak events have increased significantly over the last 10-15 years, justifying the additional investment of a hybrid system for most companies.

Only the pipeline operator can avoid a major leak event, and the decision to stop a pipeline can be a very difficult and potentially costly one. The use of an HLDS provides information and assurance that such a decision is the right one when it occurs.

Why Implement an HLDS?

- The use of multiple LDSs results in a more robust LDS overall.
- The industry (particularly in the Middle East and Europe) are looking to comply with each increasing governmental regulation.
- In the United States, API 1130 sets the standards for sensitivity, reliability, accuracy, and robustness, creating a critical requirement to meet. Only HLDS can offer the “best possible solution” as required.
- There is often already a need to have redundant Leak Detection Systems on a pipeline, making the hybrid approach a cost effective way to benefit from this redundancy.
- A redundant leak detection (or combined leak detection) in its simplest form offers multiple stand-alone systems but with separate alarms, no automated cross-correlation and no significant advantage beyond being more robust. A hybrid LDS, however, uses checks and balances between the systems to offer a faster, more precise, and more accurate (as well as robust) solution to the automated analysis pipeline leak detection and leak location.

Why Emerson?

Emerson has been a leader in developing and implementing innovative Leak Detection, Leak Location and Theft Detection systems on pipelines around the world since 1976. Linking our technology and expertise, we deliver the industry’s most complete line of LDS offerings that are robust, accurate and automate HLDS as well.