

Nautilus Leak Detection System

- 6" +
- Water, Waste Water
- Industrial

Overview



PICA has partnered with Aganova to offer the Nautilus Leak Detection System. This system uses a small diameter sphere (60 mm) that will travel freely with water flow through the pipeline, detecting leaks from inside the pipeline using acoustic sensors. Leaks within pipelines exhibit characteristic sounds that can be recorded with the Nautilus and identified during subsequent analysis.



The sphere is inserted directly into the pipeline, usually through a >100 mm valve. The sphere can pass through common valve types including butterfly valves once in the pipeline. A Synchronisation System is used to help confirm Nautilus passage as it travels along the length of the pipeline. These can be placed at locations such as air valves along the inspection length.

The sphere is caught with a net or in a tank at the end of the inspection run. The net can be inserted through a >100 mm valve and has sensors that confirm when the sphere has been captured.

Leaks of 0.04 liters/second have been detected using the Nautilus System. The margin of error in locating leaks is less than 2 meters every 500 meters when using the Synchronisation System.

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Project Snapshot

- Where: Eastern Canada
- What: 6" (150 mm)
Waste Water Pipeline Inspection
- When: 2018
- How: Free Swimming
- Why: Routine inspection for potential leaks
- Distance: 0.7 miles (1.1 km)

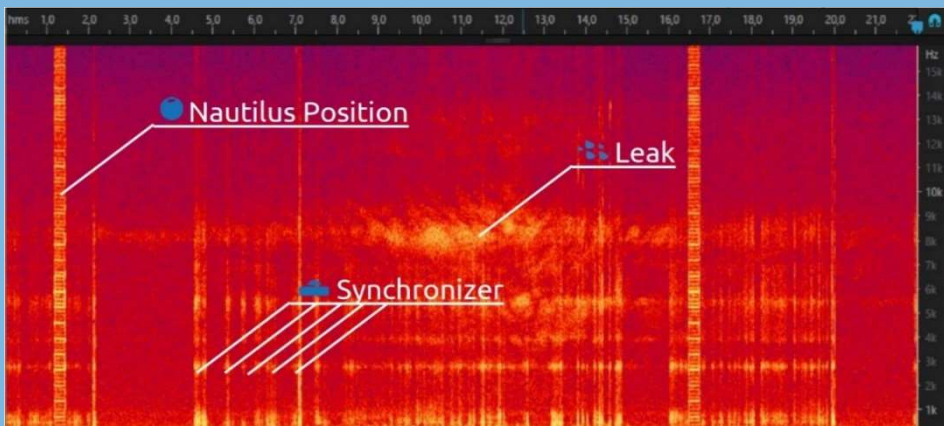


Details

In early 2018 an inspection was performed in Canada on a HDPE DN150 Waste Water Force Main. The sphere was inserted into the pipeline at a chamber with a 150 mm Tee. The tool completed a 0.7-mile (1.1 km) inspection in approximately 15 minutes at 3.9 feet per second (1.2 m/s). The inspection identified several areas of interest, including an area where an air pocket was detected, and a recommendation was made to check that the air valves were in good working order.



The sounds recorded from a leak, air pocket, or other anomaly are analysed using a mathematical



model and approximate size and location can be determined. The colourimetry data map (left) is an example of data gathered when using the Nautilus System to inspect a pipeline.

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