

## **Nautilus System: Innovative, Efficient and Cost-Effective Solution for Leak and Gas Pocket Detection in Large Diameter Pressure Pipelines**

Many utilities are losing millions of gallons of water each day through system leakage. Unfortunately, some utilities incorrectly treat this as just an accepted part of running a water utility. With aging infrastructure and water demand only increasing, utilities can no longer accept inefficiencies in their water systems.

Although leak detection on small diameter distribution mains has long been performed by many utilities, large diameter pipeline leak detection has been challenging and cost prohibitive until now. Nautilus is an innovative, efficient, and cost effective solution for inline leak and gas pocket detection in large diameter pressure pipelines. Nautilus can be used in all types of materials and in pipelines at any depth.

Nautilus consists of a small diameter sphere that is inserted into the network where it travels freely through the pipeline, driven by the water flow. Neutral buoyancy allows for operation at lower flows than tools that roll on the bottom of the pipe. The sounds generated by a leak, air pocket or anomaly have unique characteristics and Nautilus captures the sound of these from the inside of the pipeline. Once the sphere is extracted, software processes the compiled data using a mathematical algorithm showing the location of leaks, gas pockets and anomalies facilitating pipeline rehabilitation/replacement decision making.

Pinpointing non-surfacing water leaks on large diameter pipelines can be challenging, but using a proven cost effective technology like Nautilus can make the task much easier thus avoiding potential catastrophic failures caused by the leaks.

Utilities that implement a proactive approach to their water leak detection versus a reactive approach will be far ahead of the curve in reaching their water loss reduction goals. Large diameter leak detection should be incorporated into a pro-active leak detection and asset management program.