

SUCCESSFUL PILOT LEAK DETECTION POTABLE WATER PIPELINE

During December 2013 Inventec carried out a pilot to detect and locate leaks in a potable water pipeline for Oasen and Evides. The pilot was carried out on a new pipeline in the municipality of Moordrecht in The Netherlands.

The technology applied is Distributed Temperature Sensing (DTS) whereby a fiber optic cable is installed underneath the pipeline. A reading unit continuously launches a light pulse into the optical fiber and analyses the backscattered spectrum. If at any one point of the cable the temperature changes, the reading unit immediately detects this with a spatial accuracy of one meter.



Detection cable

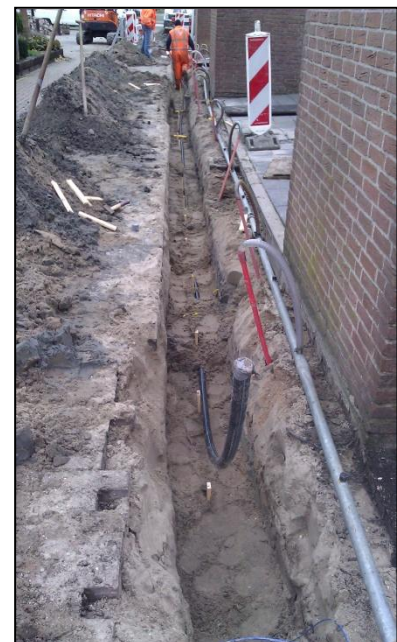
The pipeline was fitted with two 1" branch-off pipes with valve in order to simulate a leakage, both at the top and at the bottom of the pipe line. Detection of a leak under the circumstances posed quite a challenge:

- The diameter of the pipe was only 45mm. Leak detection of larger diameter pipelines is much easier.
- The ambient temperature was low and the groundwater level regularly raised above the pipeline so that the difference in temperature between the water in the pipe and its environment was marginal.

Nevertheless the system worked perfectly: a leak as small as 1 liter/minute was rapidly detected while the temperature difference did not exceed 0,5°C.

The pilot will be continued during the summer of 2014 in order to validate the system's performance also during warm periods. But in view of the results obtained during the much more demanding conditions in a cold winter period this will pose no problem.

Potable water supply companies take an interest in an efficient leak detection system in order to reduce production losses to the absolute minimum and to avoid damages and liability caused by the formation of sink holes.



Installation of the pipeline