WATER IN ACTION

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Contributing to save 120 millions litres of water in London

Like in many European cities, London's water utility, Thames Water, faces the challenge of meeting the demand of a growing population while half of its water pipe network is over a century old and looses 30% of the water supply through leaks and cracks.

The replacement of 1,600 kilometres of mains by 2010 required innovative material and high quality standards. The PE pipe solution chosen provides a sustainable solution and reduces both the financial and environmental costs by offering a number of "no dig" options.

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Preserving our resources and securing access to fresh water are a challenge in rich and poor countries alike. In Europe, for example ageing infrastructures can loose up to 40% of treated drinking water through leaks and cracks in the underground pipe systems. Network renovation in densely populated areas raises major issues, from cost and network disruption to road congestion, making it essential to adopt truly sustainable solutions.

Addressing large scale water losses

Like most major international cities, London is continuing to grow with its population projected to increase from 7.3 to 8.1 million by 2016. Growth at this rate requires a significant expansion of infrastructure and water distribution networks. However, new main systems are only part of the problem faced by Thames Water, London's water utility. The supplier is already responsible for a 17,000-km network of distribution mains, of which 30% is more than 150 years old and half of which is over 100 years old and in need of replacement.

The oldest parts of the system, inherited from many small utilities, are constructed from cast iron pipes and date from the mid-1800s. Despite detecting and repairing up to 200 leaks every day, 30% of the water supply was being lost through leakage from the ageing Victorian mains network. With the projected growth in population and corresponding increase in demand, leakage reduction through a Victorian Mains Replacement (VMR) programme was a central part of Thames Water's investments

Renovating with minimal disruption

The current overall goal set by the Water Services Regulatory Authority (OfWat) is to reduce leakage by at least 120 million litres/day through the replacement of 1,235 km of old pipes with new mains.

A continued period of drought in the south- east of England has, however, reduced water supply to the Thames region and greatly increased the need to conserve resources. As a result, an accelerated programme running through to 2010 will now provide 1600 km of replacement mains in London.

A review of the suitability of pipeline materials carried out by the Regulatory Authority showed that pipes made from PE100 material could easily withstand the heavy traffic loads and vibrations even at the shallow depths sometimes encountered in the city due to cellars and other underground obstructions.

As such, Thames Water's standard material for new distribution mains and services is now polyethylene (PE), including BorSafe™, a PE100 material from Borealis that is specifically designed for large-diameter drinking water pressure pipes.

Faster, lower cost and reliable

As a welded pipeline, PE is unaffected by ground movement in the clay due to shrinkage or heave, or to traffic vibration loads. The flexibility of the material enables the pipes to be routed around obstacles and other buried utilities. Fully welded systems also eliminate a large part of the primary source of leakage in the existing London mains network.

The solution also enables the use of a number of trenchless techniques for busy urban centres, allowing faster installation and thereby reducing time on site and disruption to traffic and the public. Additionally, trenchless techniques make it possible to do installations at locations where open-cut works may be either very difficult or impossible due to the density of other utilities. This is achieved by allowing use of existing pipe structure or by drilling a new main at a lower level

For more information
Veronika Ettinger
veronika.ettinger@borealisgroup.com

For PE 100 Borstar solutions
visit **www.Borealisgroup.com**

To know more about Thames Water
visit **www.ThamesWater.co.uk**

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