Resource type: case study

Aquam Corp. an SME Technology Supplier

Aquam has been working with Yorkshire Water (the owner) helping to line existing lead pipes right up to the point of entry in customers' homes. This is because of European water quality legislation that requires the reduction of lead content in drinking water.

Ordinarily water companies would only have responsibility to remedy or replace pipes up to the boundary of customers' land, but to ensure the required water quality at the point it enters each building a different approach was required. With the support of Ofwat, Yorkshire Water engaged Aquam to deploy a DWI-approved lining technology to 1,000 council properties and maintain stable customer supply.

Traditionally these pipes would be dug up and replaced - cutting off residents' water supply for long periods of time and causing disruption through construction activities. Pipe replacement would require open-cutting trenches, installing new pipes, removing the existing pipes and reinstating the area, which would inevitably impact local residents through noise and dust pollution, temporary road closures and water stoppages.

Alongside traditional rip-out-replace methods, less disruptive trenchless moling has also been used over the past 20 years. Given the extent of works required, Yorkshire Water required a still more advanced method that could help deliver the same output, namely compliance with the water regulators' water quality and customer service requirements. The utility had to develop an output scope that would also satisfy their customers and shareholders by delivering a better value solution than the current methodology.

In partnership with 3M, Aquam had developed a polyurethane (PU) lining product that could reduce or eliminate the necessity to replace the pipes and instead line them with a flexible polyurethane coating, in situ. The 3M Scotchkote 166l PU liner has been deployed by Yorkshire Water for some years, but was used on customer-side supply pipes for the first time in this application.

Project delivery was supported by specially fitted Overland Supply Vehicles more recently developed by Aquam to provide continuous potable water to customers without interruption, negating the risk of regulatory fines. This involved setting up temporary sterile supply from hydrant to multiple properties so that residents did not lose water, even for a few hours.

There were numerous environmental benefits to relining lead pipes over other techniques. It is estimated that during this 1,000-unit project, 188 fewer lorry loads of spoil were sent to landfill, noise pollution was reduced by 80%, less chemical dosing was required and less new plastic was required as pipes were not replaced. This method was also safer as less plant was required and fewer excavations.

As the track record of this technique grows stronger it is expected that other water providers will adopt the combined lining technology and overland supply service.

In summary this product development and innovation by Aquam would not have been possible without Yorkshire Water's commitment to:
1. Systematically engage with SMEs to ascertain the best ideas that address the key issues at hand

2. Collaborate with a small number of SMEs to provide support and guidance to ensure that the development of the technology stays focused on the key issues

3 Create focused change agent teams comprising visionary and energetic leaders as the key points of contact for the SME and empower them to make things happen together and quickly

4 Enable trials and pilot schemes and critically, when the innovation does not work perfectly, immediately collaborate and iron out the issues together