



NORTHUMBRIAN  
WATER

# Super cool cleaning for top quality tap water

Northumbrian Water is leading the UK water industry by using innovative cleaning methods as part of a multi-million pound investment programme known as The Main Event.

Over a period of time, harmless sediment can build up on the inside of water mains and can cause discoloured water when disturbed by changes in flow or pressure. To reduce the likelihood of customers receiving discoloured water, Northumbrian Water is investing £66 million to clean 400 kilometres of trunk water mains. Trunk water mains are large diameter pipes that transfer drinking water around the region.

A new cleaning method called ice pigging was trialed earlier this year with contractor Aquology in the North East of England. Following the trial success, the water company have added this technique to a range of approved cleaning methods for trunk water mains.

Ice pigging involves injecting 'slush-like' ice slurry into an isolated section of pipe before allowing the water to start flowing again. The pressure of water on either side of the slush compacts the ice, creating an 'ice pig' and forces it through the pipe. As the ice pig flows along the pipe, it scrapes sediment off the inner pipe walls. The sediment-laden ice is then flushed from the water main and collected in a tanker, while any discoloured water is returned to a nearby sewer for treatment.

The ice is formed under controlled conditions in a tank which is housed on a mobile transporter. The ice contains 4% saline solution, is kept at a temperature of -6 degrees Celsius and optimal conditions are maintained by continual mixing. For a typical section of trunk mains cleaning, 25 tonnes of ice slurry is used.

There are many benefits as a result of using ice pigging. The method is much quicker than conventional methods as the ice pig is able to flow in pipes with sharp bends and through t-junctions.

It takes just a few hours to clean a two kilometre section of pipe when using ice, whereas it would usually take up to three weeks to clean the same length of pipe using alternative methods.

As well as being more cost efficient, the whole process uses less water than conventional methods of cleaning. Rather than fully draining and refilling isolated sections of pipe, ice pigging only requires a small amount of water to be removed to allow for the injected ice.

The excavation pits for insertion and collection are much smaller and result in less disruption to customers and the surrounding environment.

Northumbrian Water will use ice pigging to clean over 75 kilometres of trunk water mains as part of The Main Event and will look at using this method in any future cleaning programmes.

For more information visit [www.themainevent-nwl.co.uk](http://www.themainevent-nwl.co.uk)

