
DISINFECTION OF WATER PIPEWORK TO NEW WATER SERVICE PIPEWORK

This document is intended for guidance for individual water services only - seek separate guidance for mains pipework.

Introduction

It may be necessary to disinfect the pipe work depending upon the size, location and installation conditions. Under normal considerations for a new domestic house, Northumbrian Water would not usually require the service pipe or any internal plumbing to be disinfected.

Northumbrian Water will however require the disinfection of new or existing supply pipes when:

- The new connection is to an existing premise domestic or otherwise that has been originally connected to a non-Northumbrian Water supply (e.g., springs, borehole, or other source). Refer to guidance note 5.
- The new water pipe is of 50mm external diameter or greater.
- The new water pipe is 50m or more in length.
- The water pipework has not been in regular use for some time (installed and left or just isolated for longer than 30 days).
- If suspected that contamination has entered the pipe during installation or has been installed in such a manner as to give concern by virtue of its location.

Typical method of disinfection (Sodium Hypochlorite)

Alternative disinfection agents can be used providing the same levels of effectiveness can be achieved and the disinfectant has been agreed by Northumbrian Water.

- The pipework being disinfected should be completely isolated from the incoming water main.
- The pipework should be flushed out to waste until the water is clear and free of air.
- Introduce a disinfecting agent, typically to 50ppm.
- When fully charged leave to stand for a minimum period of one hour.
- At the end of the disinfection period determine the concentration of the disinfectant. If the concentration is satisfactory and has not dropped below 45ppm 10% drop, the system should be drained disposing the water safely, neutralising may be required if discharging to drain or sewer.
- If the concentration is not satisfactory, the disinfection procedure must be repeated until a satisfactory result is obtained.
- The pipework should then be flushed out with drinking water until the background of the chlorine levels are achieved to that of wholesome water.
- After flushing, **sampling for bacteriological analysis must take place.**
- The pipe must then remain **mechanically sealed (cap ends)** until the connection is made to Northumbrian Water's main.

Samples and certification

Samples must be analysed for bacteriological satisfaction, by an **UKAS Accredited Laboratory** and submitted on an official test certificate. A list of accredited laboratories can be obtained at www.ukas.com.

Note: Samples should be sufficient in numbers to be fully representative of the distribution system (seek advice – typically one sample every 200m of pipework or one for each take off branch).

On site free and total chlorine residuals (to two decimal places) must be measured at the same time the water sample is taken. The results should be reported together with the analytical test report. (This measurement is in addition to any made during pipe Chlorination and are related directly to the water samples taken for analysis.)

Free Chlorine measured in mg/l (example – 0.23mg/l)
Total Chlorine measured in mg/l (example – 0.27mg/l)

Bacteriological analysis requires the results should not exceed the following limits:

Total coliforms 0 per 100ml
E Coli (Escherichia or Faecal Coliforms) 0 per 100ml
Colony counts @ 37° Celsius (two-day plate count) 50 per ml
Colony counts @ 22° Celsius (three-day plate count) 300 per ml

Test results are to be submitted to Northumbrian Water for approval. If the test results fail it will be necessary to repeat the chlorination procedure and re-sample.

THE NEW SUPPLY CONNECTION CAN ONLY BE MADE AFTER APPROVAL BY NORTHUMBRIAN WATER.

Note: The bacteriological sample results only remain valid for 30 days, after which the pipework will have to be re-tested. If the results from these samples are unsatisfactory the pipework must then be re-chlorinated and re-sampled.