Water Supply (Water Fittings) Regulations 1999
Guidance Note 5

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Disinfection of Water Pipework to Properties Previously Supplied via Natural Spring, Borehole or Other Similar Source.

Under the Water Supply (Water Fittings) Regulations 1999 untreated water taken from its natural state is regarded as a potential fluid category 5 risk to the public water supply.

Equally all water pipes and fittings that have been used to convey and store raw water are regarded as contaminated in the same manner.
For any existing property that has been previously supplied from a private natural source (be this a spring, bore hole or other similar supply) there is a fundamental prerequisite to have all internal and external pipes and fittings disinfected and tested prior to any connection being made to the public water supply.
This will require the existing plumbing system to be out of use for a minimum of 5 days whilst full disinfection and testing is completed.
The method of disinfection should be in accordance with BS8558 (2015), (PD855468: 2015), the following is a typical method acceptable to Northumbrian Water.

Typical Method of Disinfection (Sodium Hypochlorite)
Alternative disinfection agents can be used providing the same levels of effectiveness can be obtained 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 50 ppm.
- When fully charged leave to stand for a minimum period of 1 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**, samples should be sufficient in numbers to be fully representative of the distribution system (Seek Advice – Typically one sample every 200m or for each take off).
- The pipe must then remain **mechanically sealed (cap ends)** until the connection is made to Northumbrian Water's main.

Bacteriological samples must be analysed for bacteriological satisfaction and analysed 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)

A	Free Chlorine	measured in mg/l (Example – 0.23 mg/l)
B	Total Chlorine	measured in mg/l (Example – 0.27mg/l)

Bacteriological analysis required the results should not exceed the following limits: -

C	Total coliforms	0 per 100 ml
D	E Coli (Escherichia or Faecal Coliforms)	0 per 100 ml
E	Colony counts @ 37° Celsius (2-day plate count)	50 per ml
F	Colony counts @ 22° Celsius (3-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-sampled. **THE NEW SUPPLY CONNECTION CAN ONLY BE MADE AFTER APPROVAL BY NORTHUMBRIAN WATER LTD.**
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.