

WATERWIDE

Special points of interest:

- HSC—L8 requires a management system be put in place to demonstrate control of Legionella bacteria in water systems and is applicable to all buildings where the Health & Safety at Work Act 1974 applies.
- HSC—L8 requires that a Risk Assessment be carried out at least every two years or sooner if the system significantly changes.
- HSC—L8 requires a managerial line of responsibility be written down, clearly identifying who is responsible for what actions.

DOWN WATER SERVICES RISK ASSESSMENT

The HSE within the remit of HSC—L8 require that a Risk Assessment is carried out on all water systems within a building in order to determine if Legionella bacteria can grow in the system and then be disseminated from that system.

This requires specialist knowledge and understanding of pipework systems likely to be encountered within a building and the type of plant used to maintain water supplies throughout.

It also requires specialist understanding of how different environments within a water system

areas which may lead to an increased likelihood of Legionella development. Such areas may include dead legs, corrosion deposits in tanks, scale deposits, little used outlets, areas of low flow or little use, water supplies at elevated or low temperatures as well as plant operation such as the regular switching over of duty/standby pumps.

With this information to hand, the risk can be identified. A set of remedial actions may also be identified and planned in order to help reduce the immediate risk.

Schematic drawing are drawn up which identify the system and it's outlets.

From the Risk Assessment an on going monitoring regime is identified, designed to keep the system under control. This involves identifying sentinel points. Sentinel points are those outlets which are closest to or furthest from a calorifier or tank, or may be little used outlets (see photo) or areas where high risk has been

identified. The requirement is, that these outlets are monitored monthly and action taken on adverse results.

The assessment also has to detail specifically who is responsible for carrying out what actions.



Poor quality water from a low use outlet

can provide both a place for Legionella bacteria to harbour and a nutrient source on which growth can develop.

The Risk Assessment looks specifically at the design of the water system and identifies those

MICROBIOLOGICAL MONITORING

At WATERWIDE we advocate quarterly microbiological monitoring of the sentinel outlets. This is over and above the specific requirements laid out in HSC—L8 but does help to demonstrate CONTROL of the water system.

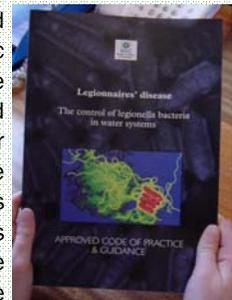
General bacterial counts give information on general water quality and water turn over.

E Coli and Coliform organisms give specific indications as to the likelihood of pathogenic bacteria being present in the water. Whilst unlikely in a direct mains supply, the presence of Coliforms are used as pathogenic indicator organisms. As Coliform organisms are

usually associated with pathogenic bacteria and are more persistent and in generally higher numbers in the environment it is easier to assess water for these organisms than the usually low numbers

and not very persistent pathogenic bacteria. Coliforms may find their way into water tanks for example by way of rodent or pigeon faeces. Or even by the ingress of insects working their way

up the overflow system pipework which has not been fitted with insect filters.



In this issue:

Down water services Risk Assessment	1
Microbiological Monitoring	1
Temperature Monitoring	2

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CODE OF CONDUCT
ASSOCIATION



**Typical Water heater with
integral header tank.**

TEMPERATURE MONITORING

Temperature Monitoring on the sentinel outlets is required on a monthly basis. Variation in temperatures along a water pipe line may indicate heat loss or heat gain and provide a localised area in which bacteria, including Legionella can grow.

HSC—L8 requires that the sentinel Cold Tap outlets provide cold water at 20oC or less after 2 minutes of running with a variation of no greater than 2oC during that 2 minute period.

Hot water systems are required to provide hot water at a minimum of 50oC WITHIN 1 minute of running. Care needs to be taken to avoid scalding.

Calorifiers should be at 60oC.

All outlets are required to be temperature checked at least once per year and WATERWIDE recommend that this is increased to quarterly in order to take into account the effect of seasonal variations which have a distinct effect.

If you have any questions or comments regarding water related topics, please telephone, fax or e-mail us.

LEGIONELLA IN HOT WATER SYSTEMS

The presence of bacteria in hot water systems is a bit of an anomaly, given that water over 50 C does tend to kill off most types of water borne bacteria. However, experience over the years has shown that the presence of micro-organisms in such systems is a real problem which requires attention and management.

The 50 °C rule only works if the bacteria are in the water at this temperature.

Most calorifiers and hot water cylinders, by their very design, have cold incoming water which is heated up before being discharged. This inevitably means that there are fixed points in the calorifier which are 'below' design temperature.

If these areas produce consistently moderate temperatures (25–40 C) bacteria can live in these areas and positively develop in the 'warm' environment.

Calcium salts which are present in most waters (to a greater or lesser degree) further promote the ability of micro-organisms to colonise a hot water system. Calcium salts are inversely soluble with temperature, meaning that as a water temperature

increases, so calcium salts tend to precipitate out as sludge.

This sludge can collect at the base of the cylinder and act as a protective environment in which bacteria can grow. Typically, even given 50–60 C in a cylinder, the temperature in these sludge's rarely reaches anywhere near these figures and hence colonisation occurs.

At times of high water usage, these sludge's can be disturbed ending up in the bulk water. With the sludge particulates harbouring the bacteria, dissemination is complete. To counter this, the use of destratification pumps are now widely used and accepted as a means of keeping water temperatures consistent throughout the cylinder.

HSC-L8 advocate an annual inspection of calorifiers / hot water cylinders to determine the need for cleaning and / or descaling. Regular flushing of the hot water cylinder or calorifier, should also be in place to minimise sludge build up.