

WATER HYGIENE POLICY

Management and Control of Legionella Bacteria



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Legislation and Guidance

The Approved Code of Practice (ACOP) L8 (fourth edition 2013) for the control of Legionella bacteria in water systems

This Approved Code of Practice gives advice on the requirements of the Health and Safety at Work Act 1974 and the Control of Substances Hazardous to Health Regulations 2002 and applies to the risk from exposure to Legionella bacteria (the causative agent of Legionellosis, including Legionnaires' disease). In particular it gives guidance on sections 2, 3, 4 and 6 of the HSW Act and regulations 6, 7, 8, 9 and 12 of COSHH. The Code also gives guidance on compliance with the relevant parts of the Management of Health and Safety at Work Regulations 1999

Health and Safety at Work Act 1974, Sections 2, 3 and 4

- Section 2 places a duty on employers to ensure the health, safety and welfare of employees. Section 2 also requires employers to consult with trade union safety representatives on matters affecting health and safety in the workplace. Employers of more than five people must also prepare a written health and safety policy and bring it to the attention of employees.
- Section 3 requires employers to ensure that non-employees who may be affected by work activities are not exposed to risks to their health and safety
- Section 4 places a duty on anyone responsible for the workplace to ensure that the premises, plant and machinery do not endanger the people using them

Control of Substances Hazardous to Health Regulations 2002 (COSHH)

COSHH provides a framework of actions designed to control the risk from a range of hazardous substances, including biological agents. The essential elements of COSHH are:

- Risk assessment
- Where reasonably practicable, prevention of exposure or substitution with a less hazardous substance, or substitution of a process or method with a less hazardous one
- Control of exposure, where prevention or substitution is not reasonably practicable;
- Maintenance, examination and testing of control measures;
- Provision of information, instruction and training for employees;
- Health surveillance of employees (where appropriate, and if there are valid techniques for detecting indications of disease) where exposure may result in an identifiable disease or adverse health effect.

The Management of Health and Safety Regulations

These regulations provide a framework for the control of health and safety in a work place and state the requirement of having a risk assessment in place.

Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) defines Legionellosis as a reportable disease which should be reported to the Local Authority or Health and Safety Executive depending on the work activity

HSG274 Technical Guidance - Legionnaires' disease

- This guidance is in 3 parts:
Part 1 – The control of Legionella bacteria in evaporative cooling systems
Part 2 – The control of Legionella bacteria in hot and cold water systems
Part 3 – The control of Legionella bacteria in other risk systems
- The guidance provides advice on identifying and assessing sources of risk, preventing or controlling the risk, managing and monitoring the risk and keeping records.

The Water Supply (Water Fittings) Regulations 1999

These regulations are important in protecting public health by specifying legal requirements for the design, installation, operation and maintenance of the plumbing systems and water fittings/appliances in order to protect the water supply in your premises from contamination.

BRADFORD COUNCIL WATER HYGIENE POLICY STATEMENT

1.0 Introduction

This policy is intended to ensure the risks from Legionella bacteria are assessed, controlled and managed within properties owned by the City of Bradford Metropolitan District Council (Leased properties may be included). The document provides guidance for managers and council employees in order to comply with their legal responsibilities, set out in the Approved Code of Practice L8: The Control of Legionella Bacteria in Water Systems.

It is essential that everyone involved in the control of Legionella should familiarise themselves and comply with the arrangements presented in this policy.

2.0 What is Legionella?

Legionella bacteria are common and can be found in all water sources, usually in low numbers. Legionella bacteria can survive under a wide variety of environmental conditions and have been found in water at temperatures between 6°C and 60°C. Water temperatures between 20°C to 45°C seem to favour growth of the bacteria and require a supply of nutrients to multiply. The organisms do not appear to multiply below 20°C and will not survive above 60°C.

It is therefore important that water in any vessel must be clean (e.g. no sediment, sludge, scale and other material within the system) and stored below 20°C or above 60°C.

On the 23rd November 1999 the Secretary of State for the Environment approved a code of practice titled *Legionnaire's disease: the control of Legionella ACOP bacteria in water systems*. This paper, which is more commonly known as L8, came into effect as a binding document on 8th January 2001 and applies to risks from Legionella bacteria in circumstances where the Health and Safety at work act 1974 applies. A fourth edition of the ACOP L8 has been published and released in November 2013 and updated in 2014.

3.0 Risk of infection

There are a number of factors that increase the risk of someone acquiring Legionellosis. Those most at risk include: Elderly and infirm, people who smoke or have high alcohol intake and those suffering from cancer, diabetes, chronic respiratory disease or kidney disease; however 'healthy' people can still be susceptible of developing Legionnaires disease. Other factors include: the presence of the Legionella bacteria, conditions suitable for growth (e.g. suitable water temperatures – between 20-45 degrees) and a means of creating and spreading water droplets.

Infection is caused by breathing tiny airborne droplets of water contaminated by the bacteria. Any water system that causes the release of contaminated aerosols into the surrounding area can transmit Legionella bacteria, including:

- Hot and cold water systems
- Stored water
- Showers and taps
- Wet air conditioning plants
- Cooling towers and Evaporative condensers
- Humidifiers which create a spray of water droplets
- Water fountains, Spa - whirlpool baths and hydrotherapy baths etc.
- Other plant and systems containing water than can create and increase the risk from Legionella during operation or when being maintained.

Symptoms of the disease include high fever, chills, headache and severe muscular ache. This is followed by a dry cough and difficulty with breathing.

4.0 Scope

This policy applies to all hot and cold water systems within Bradford Council properties and covers all Bradford Council employees.

5.0 Management systems and responsibilities

A written management system needs to be established for the implementation of control measures which also clearly defines the responsibilities of all employees involved. Those appointed to implement the control measures should be suitably trained in order to ensure tasks are undertaken in a safe and competent manner. It is important that provisions are made to allow for staff absence or leave.

The ACOP names two roles with duties and responsibilities in regards to Legionella control:

- The Duty Holder (Chief Executive)
- The Responsible Person

The Duty Holder is the person with overall responsibility for health and safety in the council and must appoint in writing a 'responsible person' in each council premises who is responsible for the control of Legionella. The Duty Holder should also ensure that a suitable and sufficient risk assessment is carried out and ensure that the person carrying out the risk assessment is competent to do so.

The Responsible Person is the person who is appointed by the duty holder to manage the day-to-day issues of complying with L8 (e.g. director, building custodian, manager or someone with similar status who has sufficient authority to ensure that control measures are carried out effectively and in a timely manner). They have ultimate responsibility in managing and controlling the identified risks from Legionella bacteria.

Their responsibilities include:

- Identifying the measures to be adopted
- Ensure a suitable and sufficient risk assessment is carried out
- Ensuring that the written control scheme in accordance with L8 and HSG 274 is fully implemented
- Ensure that anyone involved in the written control scheme are trained and competent (e.g. caretakers, site managers, contractors, sub-contractors etc.)
- To ensure communication and coordination is maintained between all parties who work on water systems, plant and equipment, this includes staff, consultant, advisors and contractors.
- To ensure water systems are adequately managed during periods of refurbishment or closures (For example: school holiday shutdown, temporary closures, etc.)
- Ensure the risk assessment is reviewed on a regular basis, especially if there are changes in the water system or it's use, change in use of the building or management changes.
- Audit the risk assessment on a yearly basis to ensure the control measures remain effective
- Manage, maintain and keep records

Designers, Manufacturers, Importers, Suppliers and Installers of water systems that may create a risk of exposure to Legionella bacteria must ensure as far as reasonably practicable ensure that the water system is designed and constructed so it will be safe without risks to health.

Therefore, it is strongly advisable to procure Councils approved contractors only, to carry out risk assessments, monitoring tasks, service, design, installation, maintenance and repairs.

A Competent Person is the company or organisation appointed to provide technical support.

The duties of the Competent Person are:

- Preparation of a detailed risk assessment to include schematic diagrams and control measures for the control of Legionella
- Provide guidance and technical advice and assist in training everyone involved in the control of Legionella
- Review risk assessments when required

6.0 Risk Assessment

The ACOP L8 states that a suitable and sufficient risk assessment must be carried out wherever there is a reasonably foreseeable risk of exposure to Legionella bacteria and identifies the following:

- Hot and cold water systems and;
- Other plant and systems containing water which is likely to exceed 20°C and which may release a spray or aerosol during operation or when being maintained
- Water systems incorporating a cooling tower
- Water systems incorporating an evaporative condenser

The risk assessment determines the risks posed to health and the required control measures to prevent or control the risk from exposure to Legionella bacteria.

The Legionella Risk Assessment should be reviewed regularly and whenever there is cause to believe that it is no longer valid:

- Following changes to the water system or its use
- Following changes to the building use
- Following the availability of new information regarding risks and control measures
- If control measures are found to be no longer effective
- If an outbreak of Legionnaires' disease or Legionellosis is associated with the system

7.0 Actions and Recommendations

When the risk assessment has been undertaken, all remedial actions and recommendations will be reported to the responsible person. All actions are categorised into high, medium and low priority based on the level of risk presented. The responsible person should then ensure that all recommendations are attended to and recorded in the Legionella Logbook on completion.

8.0 Written Scheme

Should the risk assessment show that there is a reasonable foreseeable risk and it is reasonably practicable to prevent exposure or control the risk, the responsible person must execute a written scheme of control which should include:

- The risk assessment
- Monitoring regime
- Up-to-date plan showing the layout of the plant and systems (schematic drawing)
- Precautions to take
- Regular audits to ensure the written scheme is effective
- Remedial actions and emergency plans if the written scheme is shown not to be effective

9.0 Precautions

In order to control the risk to health from the Legionella bacteria there are precautions that need to be considered for each council property. These include:

- Controlling of the release of water spray
- Avoidance of water temps between 20°C - 45°C
- Avoidance of stagnation in water system
- Avoidance of the use of materials that harbor micro - organisms
- Maintenance of the cleanliness of the system
- Actions to ensure the correct and safe operation and maintenance of the water system.

Risk from Scalding

Scalding may occur in many situations in all types of buildings and applications, the degree of potential scalding depends on the water temperature (significantly increased at temperatures in excess of 45° C), contact time, susceptibility of individuals and the volume of water delivered. The most serious risk of scalding is where there is whole body immersion (e.g. baths and showers).

In order to control the growth and multiplication of Legionella bacteria, it is necessary to raise hot water temperatures to a level which significantly increases the risk of scalding. In order to address this increased risk it is necessary to implement precautionary measures to hot water outlets.

In any environment where people are especially high risk of being scalded, Thermostatic Mixing Valves (TMV's) must be installed and set to control the temperature between 38 and 46° C.

Thermostatic Mixing Valves

The blended water may provide an environment in which Legionella can multiply, thus increasing the risk of exposure. Therefore, the fitting of a TMV, should be informed by a comparative assessment of scalding risk versus the risk of infection from Legionella.

In order to control the risk of the growth of the Legionella bacteria where TMV's are fitted, consider the following factors:

- Where practicable, TMVs should be incorporated directly in the tap fitting, and mixing at the point of outlet is preferable;
- Where TMVs are fitted with low flow rate spray taps on hand washbasins, the risk is increased;
- TMV valves should be as close to the Point Of Use as possible to minimise the storage of blended water;
- Where a single TMV serves multiple tap outlets, the risk can be increased;
- Where TMVs are designed to supply both cold and blended water, an additional separate cold tap is rarely needed and may become a low use outlet.

Where TMV's are fitted you must ensure they:

- Are readily accessible
- Have means of isolation
- Are serviced at the frequency recommended in the Legionella risk assessment taking account any manufacturer's recommendations

Unprotected Outlets

- Hot water outlets which have been designated as "unprotected" (e.g. cleaners sinks, staff kitchens, etc.) which are not accessible to vulnerable users, must be labelled with a warning label to indicate the presence of hot water.

10.0 Training

The responsible person and those employees involved in the control scheme must ensure they have adequate training, knowledge and the skills required to meet their roles and responsibilities for Legionella control.

11.0 Monitoring Regime

To meet legal requirements for the effective management of legionella, weekly and monthly checks must be carried out. It is the responsibility of the Premises Manager to ensure that these checks are implemented and recorded correctly, at the required frequency, as recommended by the risk assessment.

By understanding and having awareness of the ideal conditions for the growth of the Legionella bacteria, a monitoring scheme can be put in place to reduce the risk.

A suitably competent person should be appointed to undertake the Legionella monitoring regime and carry out any required remedial measures promptly. To ensure accurate monitoring all equipment used should be calibrated before use.

Service	Action to take	Frequency
Calorifiers	Inspect calorifier internally by removing the inspection hatch or using a boroscope and clean by draining the vessel. The frequency of inspection and cleaning should be subject to the findings and increased or decreased based on conditions recorded	Annually, or as indicated by the rate of fouling
	Where there is no inspection hatch, purge any debris in the base of the calorifier to a suitable drain Collect the initial flush from the base of hot water heaters to inspect clarity, quantity of debris, and temperature	Annually, but may be increased as indicated by the risk assessment or result of inspection findings
	Check calorifier flow temperatures (thermostat settings should modulate as close to 60 °C as practicable without going below 60 °C) Check calorifier return temperatures (not below 50 °C, in healthcare premises not below 55 °C)	Monthly
Hot water services	For non-circulating systems: take temperatures at sentinel points (nearest outlet, furthest outlet and long branches to outlets) to confirm they are at a minimum of 50 °C within one minute (55 °C in healthcare premises)	Monthly
	For circulating systems: take temperatures at return legs of principal loops (sentinel points) to confirm they are at a minimum of 50 °C (55 °C in healthcare premises). Temperature measurements may be taken on the surface of metallic pipework	Monthly
	For circulating systems: take temperatures at return legs of subordinate loops, temperature measurements can be taken on the surface of pipes, but where this is not practicable, the temperature of water from the last outlet on each loop may be measured and this should be greater than 50 °C within one minute of running (55 °C in healthcare premises). If the temperature rise is slow, it should be confirmed that the outlet is on a long leg and not that the flow and return has failed in that local area	Quarterly (ideally on a rolling monthly rota)
	All HWS systems: take temperatures at a representative selection of other points (intermediate outlets of single pipe systems and tertiary loops in circulating systems) to confirm they are at a minimum of 50 °C (55 °C in healthcare premises) to create a temperature profile of the whole system over a defined time period	Representative selection of other sentinel outlets considered on a rotational basis to ensure the whole system is reaching satisfactory temperatures for legionella control
<p><i>HOT WATER SHOULD BE STORED ABOVE 60°C AND DISTRIBUTED ABOVE 50°C</i></p> <p><i>ALL HOT WATER OUTLETS SHOULD BE LABELLED WITH A WARNING HOT WATER LABEL</i></p>		

POU water heaters (no greater than 15 litres)	Check water temperatures to confirm the heater operates at 50–60 °C (55 °C in healthcare premises) or check the installation has a high turnover	Monthly–six monthly, or as indicated by the risk assessment
Combination water heaters	Inspect the integral cold water header tanks as part of the cold water storage tank inspection regime, clean and disinfect as necessary. If evidence shows that the unit regularly overflows hot water into the integral cold water header tank, instigate a temperature monitoring regime to determine the frequency and take precautionary measures as determined by the findings of this monitoring regime	Annually
	Check water temperatures at an outlet to confirm the heater operates at 55–60 °C	Monthly
Cold water storage tanks (CWST)	Inspect cold water storage tanks and carry out remedial work where necessary	Annually
	Check the tank water temperature remote from the ball valve and the incoming mains temperature. Record the maximum temperatures of the stored and supply water recorded by fixed maximum/minimum thermometers where fitted	Annually (Summer) or as indicated by the temperature profiling
Cold water services	Check temperatures at sentinel taps (typically those nearest to and furthest from the cold tank, but may also include other key locations on long branches to zones or floor levels). These outlets should be below 20 °C within two minutes of running the cold tap. To identify any local heat gain, which might not be apparent after one minute, observe the thermometer reading during flushing	Monthly
<i>COLD WATER SHOULD BE STORED AND DISTRIBUTED BELOW 20°C</i>		
<i>ALL COLD WATER OUTLETS SHOULD BE LABELLED WITH NON DRINKING WATER OR DRINKING WATER LABELS</i>		
	Take temperatures at a representative selection of other points to confirm they are below 20 °C to create a temperature profile of the whole system over a defined time period. Peak temperatures or any temperatures that are slow to fall should be an indicator of a localised problem	Representative selection of other sentinel outlets considered on a rotational basis to ensure the whole system is reaching satisfactory temperatures for legionella control
	Check thermal insulation to ensure it is intact and consider weatherproofing where components are exposed to the outdoor environment	Annually
Showers and spray taps	Dismantle, clean and descale removable parts, heads, inserts and hoses where fitted	Quarterly or as indicated by the rate of fouling or other risk factors, eg areas with high risk patients
POU filters	Record the service start date and lifespan or end date and replace filters as recommended by the manufacturer (0.2 µm membrane POU filters should be used primarily as a temporary control measure while a permanent safe engineering solution is developed, although long-term use of such filters may be needed in some healthcare situations)	According to manufacturer's guidelines

Base exchange softeners	Visually check the salt levels and top up salt, if required. Undertake a hardness check to confirm operation of the softener	Weekly, but depends on the size of the vessel and the rate of salt consumption
	Service and disinfect	Annually, or according to manufacturer's guidelines
Multiple use filters	Backwash and regenerate as specified by the manufacturer	According to manufacturer's guidelines
Infrequently used outlets	Consideration should be given to removing infrequently used showers, taps and any associated equipment that uses water. If removed, any redundant supply pipework should be cut back as far as possible to a common supply (eg to the recirculating pipework or the pipework supplying a more frequently used upstream fitting) but preferably by removing the feeding 'T' Infrequently used equipment within a water system (ie not used for a period equal to or greater than seven days) should be included on the flushing regime Flush the outlets until the temperature at the outlet stabilises and is comparable to supply water and purge to drain Regularly use the outlets to minimise the risk from microbial growth in the peripheral parts of the water system, sustain and log this procedure once started For high risk populations, eg healthcare and care homes, more frequent flushing may be required as indicated by the risk assessment	Weekly, or as indicated by the risk assessment
TMVs	Risk assess whether the TMV fitting is required, and if not, remove Where needed, inspect, clean, descale and disinfect any strainers or filters associated with TMVs To maintain protection against scald risk, TMVs require regular routine maintenance carried out by competent persons in accordance with the manufacturer's instructions.	Annually or on a frequency defined by the risk assessment, taking account of any manufacturer's recommendations
Expansion vessels	Where practical, flush through and purge to drain	Monthly–six monthly, as indicated by the risk assessment

12.0 Record Keeping

The Responsible Person for Legionella control must record the findings of the risk assessment and ensure records of the monitoring regime are kept.

Risk assessment records should be kept throughout the period they are current and two years after.

Monitoring records should be kept for at least 5 years.

13.0 Audit

An audit of the Legionella written control scheme should be completed at least on an annual basis by the responsible person. This allows you to audit the arrangements in place in order to ensure the control scheme is effective, identify any issues that need addressing or if the risk assessment requires updating.

14.0 Suspected Legionella Outbreak

Legionnaire's disease is notifiable under the Health Protection (Notification) Regulations 2010.

In the event of an outbreak within a council property the following control measures should be put into place immediately:

- All processes which are capable of generating and disseminating airborne water droplets will be shut down until sampling procedures and remedial cleaning or other work has been completed.
- Water samples will be taken before any emergency disinfection is undertaken.
- All staff health records will be checked to confirm whether or not there are any other undiagnosed cases of illness.
- Full co-operation will be provided to the local enforcement agency who may undertake an investigation by providing all details available of pipe runs, operational records, statements from plant operatives / managers and statements from water treatment consultants and/or contractors.

15.0 Summary

Overall, to comply with their legal duties, employers and those with responsibilities for the control of a premise should:

- Identify and assess sources of risk - to include checking whether conditions are present which will encourage bacteria to multiply, numbers of persons who could potentially be exposed and whether there is the potential for aerosol generation.
- Manage the risk.
- Prepare a scheme for preventing or controlling the risk.
- Implement, manage and monitor precautions.
- Keep records of the precautions.
- Appoint a person to be managerially responsible

16.0 Appendices

Appendix 1 Glossary

ACoP: Approved Code of Practice

Aerosol: a suspension in a gaseous medium of solid particles, liquid particles or solid and liquid particles having a negligible falling velocity. In the context of this document, it is a suspension of particles which may contain legionella with a typical droplet size of <5 µm that can be inhaled deep into the lungs.

Bacteria: (singular bacterium) a microscopic, unicellular (or more rarely multicellular) organism

Cold Water Storage Tank (CWST): A cold water storage vessel, these should be compliant with the current water regulations and suitably sized. Cold water should be stored below 20⁰c

Calorifier (Cal): A hot water storage vessel e.g. domestic hot water cylinder, large commercial calorifier. These may be heated indirectly via a heating coil or directly by means of an immersion heater or have a gas fired burner at the base. Calorifiers should be set to achieve temperature of at least 60⁰c

Employee: also includes trainees on government schemes, volunteers, agency workers, temporary workers and casual workers.

HSE: Health and Safety Executive is the governing body responsible for the regulation of almost all the risks to health and safety arising from work activity in Britain.

Legionnaires' Disease; a form of pneumonia caused by bacteria of the genus legionella.

Legionella: a single bacterium of the genus legionellae.

Legionellae: the name of a genus of bacteria which includes over 50 species and belongs to the family Legionellaceae. They are ubiquitous in the environment and found in a wide spectrum of natural and artificial collections of water.

Manager: is any employee who supervises at least one other member of staff or manages the provision of a Council service including Supervisors, Team Leaders, Premises Managers and Heads of establishment.

Point of Use (POU): Low storage water heater with under 10 litres capacity, can be installed under or above a sink. POU heaters should be set to achieve temperature of at least 50⁰c

It does not however include gas combination type boilers/instantaneous water heaters as these do not store water but heat it on demand

Reasonably Practicable: The degree of risk in a particular job or workplace needs to be balanced against the time, trouble, cost, benefit and physical difficulty of taking measures to avoid or reduce the risk. However, it should not be used as an excuse to avoid taking safety measures.

Responsible Person: (This is usually the Premises Manager) the designated person who has responsibility for the premises and the persons and systems contained within it.

RIDDOR: Regulations requiring the reporting of injuries, diseases and dangerous occurrences to the [HSE](#) "Reporting of Injuries, Diseases and Dangerous Occurrences Regulations"

Risk Assessment: A written assessment of the risk involved from undertaking an activity. In regards to Legionella, a risk assessment assesses the risk from exposure to Legionella bacteria from water sources and determines the precautionary measures.

Sentinel Outlets: Nearest and Furthest taps on the water system.

Thermostatic Mixing Valve (TMV): is a valve which automatically controls the temperature of water at an outlet

Water Systems: These include such plant as cold water storage tanks, calorifiers, water heaters, showers, cooling towers, whirlpool baths, hydrotherapy pools and any other miscellaneous water systems that may be present and which may release aerosols.

Water Heater (WH): Typically a wall mounted water heater with storage of up to 50 litres capacity heated by an immersion heater. Water Heaters should be set to achieve temperature of at least 60⁰c