William Martin

Briefing Note - June 2024

LEGIONELLA RISK ASSESSMENTS

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Content

1 – Overview

This Briefing Note has been produced to remind clients of their responsibilities with regards to managing the Legionella risk in buildings and to explain the different service elements necessary to ensure the overall risk is comprehensively managed.

William Martin is registered with the Legionella Control Association to undertake Legionella risk assessments, provide consultancy services, sampling and training.

Our team of expert risk assessors are able to support you in meeting all your duties, as explained below in this Briefing Note.

2 – Background

What is Legionnaires' disease?

Legionellosis is the collective name given to the illnesses caused by Legionella bacteria. This includes the most serious Legionnaires' disease, as well as the similar but less serious conditions of Pontiac fever and Lochgoilhead fever.

Legionnaires' disease is a potentially fatal form of pneumonia and everyone is potentially susceptible to infection. However, some people are at higher risk, including:

- sex (males more susceptible than females);
- people over 45 years of age;
- smokers and heavy drinkers;
- people suffering from chronic respiratory or kidney disease; and
- anyone with an impaired immune system.

Where are Legionella bacteria found?

The bacterium Legionella are common in natural water sources such as rivers, lakes and reservoirs, but are usually in low numbers. Since Legionella bacteria are widespread in the environment, they may also contaminate and grow in purpose-built water systems such as cooling towers, evaporative condensers, hot and cold water systems and whirlpool spas.

Are there Legionella risks in my workplace?

All systems require a risk assessment, however not all systems will require elaborate control measures. Any water system that has the right environmental conditions could potentially be a source for Legionella bacteria growth. There is a reasonably foreseeable Legionella risk in your water system if:

- water is stored or re-circulated as part of your system;
- the water temperature in all or some part of the system is between 20–45 °C;
- there are sources of nutrients such as rust, sludge, scale and organic matters;
- other conditions that are likely to encourage Legionella bacteria to multiply such as increased oxygen levels, presence of amoebae, biofilm or scale;

- it is possible for aerosols to be produced and, if so, they can be dispersed over a wide area, e.g. showers and aerosols from cooling towers; and

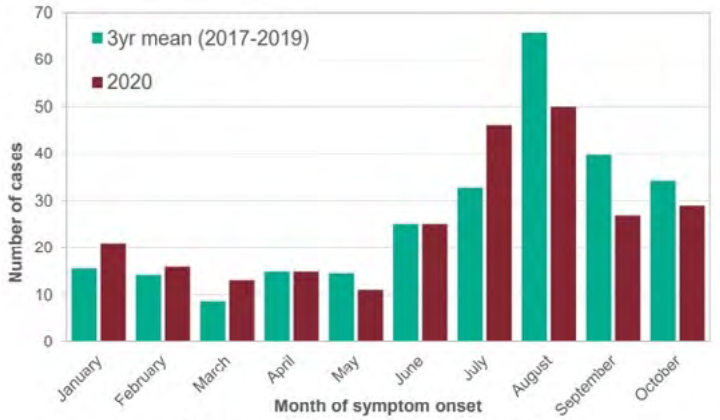
The most common places where Legionella can be found include purpose-built water systems, cooling towers, evaporative condensers, hot and cold water systems and spa pools. There are also a number of other systems that may pose a risk to exposure to Legionella, e.g. humidifiers, air washers, emergency showers, indoor water features etc.

Seasonal Significance

As we approach the warmer weather in the UK, we will discuss below the importance of controlling water temperatures. Legionella bacteria is typically dormant at temperatures below 20°C and for most of the year, throughout the UK, mains water temperatures fall well below this level. However, elevated mains and cold water temperatures are common during the warm summer months particularly in central London and other major UK cities, with water suppliers permitted to provide a water supply up to 25°C. (Legionella bacteria is active between 20°C and 45°C, with the rate of bacterial activity increasing as water temperatures increase above 20°C with an optimum temperature for growth of around 37°C).

This graph illustrates the increased number of cases reported in the summer months.

Furthermore, poor water turnover significantly increases the risk of stagnation in a water system which can also result in heat gain in a cold water system as water is allowed to stand in tanks, pipework and the wider distribution system and warm to ambient temperatures.



Source: Public Health England

3 – Duties

Duties under the Health and Safety at Work Etc Act 1974 (HSWA) apply to the risks from exposure to Legionella bacteria that may arise from work activities. The Management of Health and Safety at Work Regulations 1999 also provide a broad framework for controlling health and safety at work.

As well as requiring risk assessments, they also require employers to:

- have access to competent help in applying the provisions of health and safety law;
- establish procedures for workers if there are situations presenting serious, imminent danger; and
- for co-operation and co-ordination where two or more employers or self-employed people share a workplace.

More specifically, the Control Of Substances Hazardous to Health Regulations 2002 (COSHH) provides a framework of actions designed to control the risk from a range of hazardous substances, including biological agents.

Furthermore the Approved Code of Practice (ACOP) L8 and technical documents HSG 274 Parts 1 to 3, gives practical advice on the requirements of HSWA and COSHH and applies to the risk from exposure to Legionella bacteria (the causative agent of legionellosis, including Legionnaires' disease).

The guidance applies to the following systems;

- cooling towers, closed-circuit cooling towers, evaporative condensers and certain adiabatic coolers.
- all domestic hot and cold water systems at places of work (including residential accommodation if it is leased), no matter how small.

It identifies the statutory duty holder as:

- the employer, where the risk from their undertaking is to their employees or others; or
- a self-employed person, where there is a risk from their undertaking to themselves or others; or
- the person who is in control of premises or systems in connection with work, where there is a risk from systems in the building, e.g. where a building is let to tenants, but the landlord keeps responsibility for its maintenance.

Whilst the ACOP L8 is not an Act or Regulation, it does have a unique legal status in that "If you follow the advice you will be doing enough to comply with the law in respect of those specific matters on which the Code gives advice. You may use alternative methods to those set out in the Code in order to comply with the law.

An additional duty includes the Notification of Cooling Towers and Evaporative Condensers Regulations 1992 whereby you must notify your local authority, in writing, if you have a cooling tower, evaporative condenser or certain adiabatic coolers on site and include details about where it is located. You must also tell them if/when such devices are no longer in use. Notification forms are available from your local environmental health department.

If you have a case of legionellosis in an employee who has worked on cooling towers or domestic hot and cold water systems that are likely to be contaminated with Legionella, you must report this under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR).

4 – Legionella Risk Assessments

To identify the risks in your water system you, or a competent person who understands your water systems and any associated equipment, should establish any possible exposure to Legionella risks, as part of a risk assessment.

Your risk assessment should include:

- details of management personnel who play an active role in the risk management process, to include names, job titles and contact information for:
  - the dutyholder;
  - the appointed responsible person (s), including deputies;
  - service providers, e.g. water treatment suppliers, cleaning and disinfection service providers;

- an assessment of the competence of those associated with risk management, including their training records;
- identification of roles and responsibilities, to include employees, contractors and consultants;
- a check that consideration has been given to removing the risk by 'substitution or elimination';
- the scope of the assessment, i.e. the details and entirety of the plant being assessed;
- assessment of the validity of the schematic diagram which should include all parts of the system where water may be used or stored;
- details of the design of the system, including an asset register of all associated plant, pumps, strainers, outlets and other relevant items;
- assessment of the potential for the water system to become contaminated with legionella and other material;
- details of any water pre-treatment process;
- assessment of the potential for legionella to grow within the system and effectiveness of control measures:
  - chemical and physical water treatment measures;
  - disinfection and cleaning regimes;
  - remedial work and maintenance;
- evidence of corrective actions being implemented;
- evidence of proactive management and follow-up of previous assessment recommendations or identified remedial actions;
- evidence of the competence of those involved in control and monitoring activities;
- a review of the legionella control scheme, including management procedures and site records or logbooks, which include:
  - system maintenance records;
  - outine monitoring data;
  - water treatment and service reports;
  - cleaning and disinfection records;
  - legionella and other microbial analysis results.

The following specific considerations should also be assessed for hot and cold water systems:

- quality of the supply water – where this is not wholesome, additional risks and measures to mitigate the risk must be included in the risk assessment process;
- examination of tanks for configuration, flow pattern, protection against contamination, materials of construction, condition, temperature, size in comparison to water consumption and cleanliness or contamination;
- any points in the system where there is a possibility of low or no flow, such as blind ends, dead legs and little used outlets;
- any parts of the CWDS susceptible to heat gain to an extent that could support the growth of legionella;
- any parts of the system with low water throughput including, e.g. low-use fittings in unoccupied areas or oversized tanks that may lead to stagnation;

- any parts of the system which are configured in parallel with others and where the water flow could be unbalanced;
- hot water system return pipes – stagnation often occurs, particularly at points furthest away from the water heater, where circulation has failed and the hot water has cooled;
- timely, appropriate remedial action to poor temperature or monitoring results and using this as an indicator of the effectiveness and adequacy of the management controls in place.

The assessment also needs to be reviewed on a regular basis or when there is reason to suspect it is no longer valid, such as;

- changes to the water system or its use;
- changes to the use of the building in which the water system is installed;
- the availability of new information about risks or control measures;
- the results of checks indicating that control measures are no longer effective;
- changes to key personnel;
- a case of legionnaires' disease/legionellosis associated with the system.

BS 8580:2019 details the requirements for carrying out Legionella risk assessments. It also highlights the need for independence and should not allow commercial, financial or other pressures to compromise impartiality.

5 – Selecting a Competent Risk Assessor

As an employer or person in control of premises, you must appoint someone competent to help you comply with your health and safety duties, e.g. take responsibility for managing the risks. A competent person is someone with the necessary skills, knowledge and experience to manage health and safety, including the control measures and normally, this will involve engaging a consultant from outside your business.

It is therefore very important to ensure before employing a contractor, to be satisfied that they can do the work you want to the standard that you require. There are a number of external schemes to help you determine this, and specifically in relation to conducting Legionella risk assessments, the Legionella Control Association: A recommended code of conduct for service providers. William Martin is a registered member of the Legionella Control Association.

Our risk assessors;

- have survey knowledge and know the risks in surveying;
- have training, experience (minimum 9 years), and recognise their limitations;
- are able to demonstrate independence, impartiality, and integrity;
- undertake their work strictly in accordance with BS 8580:2019;
- carry out Legionella sampling in accordance with BS 7592:2022 and microbiological sampling in accordance with BS EN ISO 19458:2006.

Note: Legionella sampling must only be carried out by a suitably trained person and must be analysed by a UKAS accredited laboratory.

6 – Control Measures

You should consider whether you can prevent the risk of Legionella in the first place by considering the type of water system you need, e.g. consider whether it is possible to replace a wet cooling tower with a dry air-cooled system. The key point is to design, maintain and operate your water services under conditions that prevent or adequately control the growth of Legionella bacteria.

You should, as appropriate:

- ensure that the release of water spray is properly controlled;
- avoid water temperatures and conditions that favour the growth of Legionella and other micro-organisms;
- ensure water cannot stagnate anywhere in the system by keeping pipe lengths as short as possible or by removing redundant pipework;
- avoid materials that encourage the growth of Legionella. (The Approvals Directory references fittings, materials, and appliances approved for use on the UK Water Supply System by the Water Regulations Advisory Scheme);
- keep the system and the water in it clean; and
- treat water to control Legionella (and other microorganisms).

If you identify a risk that you are unable to prevent, you must introduce appropriate controls which must be documented in the form of a written scheme for controlling the risk. This scheme should include;

- purpose;
- scope;
- risk assessment;
- management structure:
  - duty holder;
  - responsible person(s) and communication pathways;
  - training;
  - allocation of responsibilities, i.e. to the dutyholder, responsible person(s) and water treatment service provider;
- up-to-date schematic plan showing the layout of the system(s) and its location within and around the premises – this should identify piping routes, storage and header tanks, calorifiers and relevant items of plant, especially water softeners, filters, strainers, pumps and all water outlets;
- the correct and safe operation of the system;
- precautions in place to prevent or minimise risk associated with the system;
- analytical tests, including microbiological testing, other operational checks, inspections and calibrations to be carried out, their frequency and any resulting corrective actions;
- remedial action to be taken in the event that the scheme is shown not to be effective, including control scheme reviews and any modifications made;
- health and safety information, including details on storage, handling, use and disposal of any chemical used in both the treatment of the system and testing of the system water;
- incident plan, which covers the following situations:
  - major plant failure, e.g. chemical system failure;

- very high levels or repeat positive water analyses for Legionella;
- an outbreak of legionellosis, suspected or confirmed as being centred at the site;
- an outbreak of legionellosis, the exact source of which has yet to be confirmed, but which is believed to be centred in an area which includes the site.

7 – William Martin Legionella Services

We provide comprehensive Legionella risk assessment and consultancy services. Our team of qualified experts and surveyors are here to improve your compliance.

Risk Assessment and General Support Services

- Legionella risk assessments of domestic water systems, evaporative cooling systems and other high risk water systems in compliance with ACOP L8, HSG274 and BS8580.
- Strategic corporate compliance status audit and gap analysis.
- Water hygiene audits of all water system types, including drinking water.
- Sampling and UKAS accredited analysis for Legionella bacteria and other microbiological and chemical properties.
- Comprehensive Legionella control logbooks.
- Preparation of a written scheme of control procedures.
- Schematic drawings.
- Legionella awareness training for operators, supervisors and building managers.

Competent Support

- Strategic Legionella management reviews.
- Policies, procedures and safe working practices.
- Consultancy and advice.
- Management information reporting.
- Coaching and mentoring.
- Emergency incident advice.
- Liaison with enforcement bodies.

Meridian

Meridian is William Martin's health and safety compliance platform, which enables you to easily track vast amounts of data from your surveys, audits, and risk assessments—all in one secure location.

With regards to the management of Legionella bacteria, Meridian allows you to conveniently:

- host all your property risk assessment reports in one location;
  track and report on remedial action compliance; and
- locate and update written scheme of control procedures.

William Martin

Compliance without compromise

We create next-generation property compliance by fusing clever consultancy with cutting-edge technology, so our clients can grow. Our products include:

Unparalleled expertise to safeguard your people and property.

Our online compliance and risk management platform gives you total visibility.

Take control of your supply chain, confidently and efficiently.

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Health & Safety • Legionella • Fire Safety • Asbestos • Contractor Management • Accessibility • Environmental • Training

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