THERE’S SOMETHING IN THE WATER

Every business, facility and public or commercial building can play host to hidden risks that endanger people in and around their premises.

Building owners and business proprietors have a moral and legal obligation to ensure those risks are managed effectively. Not only does the management of these risks safeguard workers, visitors and the nearby public, it also prevents business downtime and protects the bottom line.

While some risks are easy to manage, others are difficult to identify, making them challenging to manage until it’s too late. Legionella is a major risk that can lurk undetected in any water system and if not identified and managed effectively, its impact can be fatal.

This whitepaper will provide an insightful exploration of Legionella risks and best practice processes for the identification, monitoring and management of Legionella from Clearwater’s experts in Legionella control. It will also outline official Legionella codes of practice with helpful advice on how to achieve continuous Legionella compliance in line with these codes of practice.

LEGIONELLA OVERVIEW

Legionella is a bacterium that thrives in certain water conditions and poses a fatal threat to anyone who inhales water contaminated with it.

There are over 45 species of Legionella bacteria which habitually lurk in ponds and rivers. These can also be commonly found in water systems where water quality is not maintained to a suitable standard. The most virulent species is Legionella pneumophila which is responsible for the majority of Legionella infections in humans.

In water systems, the growth of Legionella can be perpetuated by build ups of scale, rust, algae, sludge and other biological materials that impact the quality of water and plant equipment. It thrives in temperatures between 20ºC and 45ºC.

Commonly affected sources of Legionella contamination include cooling towers and potable water systems that supply showers, sinks, basins and toilets.

Any environment or process where an aerosol is created presents a legionella risk. But the risk isn’t just limited to aerosols. Any part of a water system that has the potential to disseminate water droplets within temperature range in which Legionella thrives (20ºC and 45ºC) also presents a significant risk. Example areas that must be considered include cooling towers, showers, spas and jet-washing equipment, but the any part of the system that has the potential to create water spray or vapour must be monitored.

KEY LEGIONELLA FACTS:
- Named after an outbreak at an American Legion convention
- Thrives in water between 20ºC and 45ºC
- Growth promoted by stagnant water
- Also promoted by corrosion, scale, sludge and other biological materials
- Causes Legionnaires’ disease and Pontiac fever
- Can be fatal
- Businesses and buildings required to manage Legionella risk in line with official compliance
A FATAL THREAT

When water contaminated with Legionella is inhaled, the bacteria can manifest as a number of illnesses including Legionnaires’ disease and Pontiac fever.

It only takes the inhalation of one single airborne droplet of contaminated water from the type of aerosol commonly created by cooling towers to develop either of these illnesses.

As a form of pneumonia, Legionnaires’ disease can have a fatal impact. Immunosuppressed people such as elderly people and hospital patients are the most at risk.

In 2018 alone, there were 814 cases of Legionnaires’ disease reported in England according to data released by Public Health England. Of these 532 were confirmed.

The data shows that June to October is the period in which Legionnaires’ outbreaks most commonly occur. This is likely to be due to the rise in temperatures during this period, highlighting the importance of temperature control in water systems.

LEGIONELLA OVERVIEW

THE RISK WITHIN YOUR PREMISES

In many cases, Legionella outbreaks are only discovered when people fall ill and their symptoms suggest an outbreak has occurred. The risk is difficult to detect but there are simple measures that can be taken to safeguard your business and its people from the Legionella risk. However, the volume of recorded cases suggests that these simple measures are not being undertaken.

For clarity, here are the five key steps every business should follow:

1. Get to know your water system
   An understanding of your water system and how it works is the first step in protecting your business from the Legionella risk. Without a clear understanding of how the system works, or which parts of the system are in use and which are redundant, it’s impossible to accurately assess the safety of the system.

2. Implement regular risk assessments
   Your water system should be monitored for signs of Legionella as frequently as possible. Without regular risk assessments, Legionella and other risks such as failing equipment can go undetected, posing a threat to the people on your premises and even resulting in costly repair or replacement of equipment and business downtime. If the personnel responsible for an organisation’s water systems are unsure of what to look for, it’s advisable to enlist a third party risk consultancy service to undertake the risk assessments or provide the relevant training.

3. Step up your control measures
   Water that sits for extended time periods in parts of the system that are not frequently used provides an ideal environment for Legionella to thrive. Control measures such as regular flushing of infrequently used parts of the water system must be undertaken to reduce the risk.

4. Invest in technical knowledge
   Technical knowledge is imperative to managing, maintaining and ensuring the safety and longevity of your water system. Without the right technical expertise in place, your water system could be receiving the wrong treatment and the signs of a Legionella outbreak could easily be missed during assessment processes.

5. Act quickly on your findings
   No matter whether a Legionella outbreak has been determined or merely suspected, it’s important to act as quickly as possible. From removing unused pipework where stagnant water sits, to treating cooling towers where scale and corrosion could be promoting Legionella growth, the appropriate measures must be taken quickly. Where onsite personnel lack the relevant skills, third-party water management providers can offer rapid response times with expert teams ready to be deployed to site to treat your water system.

In 2018 alone, 814 cases of Legionnaires’ disease were reported in England of which 532 were confirmed.

SECTORS MOST AT RISK

The Legionella risk extends across various sectors. From potable water systems in healthcare and hospitality sites to more complex water systems in industrial facilities, to office blocks and other commercial buildings, building managers have an obligation to monitor and manage the Legionella risk.

Hospitals and Healthcare

Elderly and immunosuppressed hospital and healthcare patients are more susceptible to infection than others. As such, the effective management of water systems in the facilities must be administered in accordance with HTM 04-01. From potable water supplies to cooling and heating, these facilities rely on complex water systems which require frequent monitoring and maintenance.

Industrial and Manufacturing Facilities

Industrial and manufacturing facilities are challenging environments when it comes to managing the Legionella risk. From cooling towers to complex production lines that use water in the production and transportation of goods around the facility, it is vital to ensure the Legionella risk is controlled and site workers, visitors and the surrounding public are protected from the risk.

Care Facilities

Like hospitals and healthcare facilities, care homes and nursing homes also have to extend their duty of care to ensure that on site water systems do not pose a risk to elderly and vulnerable patients. With high volumes of kitchen and bathroom facilities and a high turnover of residents, care facilities provide the ideal environment for Legionella to breed in unflushed water systems.

Hospitality

From hotels and spas to other hospitality sites, hospitality facilities pose a high risk with complex water systems and pools, hot tubs and saunas a common feature. Some hospitality businesses experience busy seasons and quieter seasons therefore it’s crucial to undertake preventative measures, especially during those quieter seasons when water systems are used less frequently.

COMPLIANCE

The HSE’s Approved Code of Practice (ACoP) L8 (Legionnaires’ disease: control of Legionella bacteria in water systems) describes how to comply with the Regulations and the duties imposed by the Health and Safety at Work Act 1974 (HSW) and Control of Substances Hazardous to Health Regulations (COSHH).

ACoP L8

ACoP L8 is the HSE’s guidance which outlines the recommended requirements for the control of Legionella bacteria in water systems.

HSG 274

HSG 274 outlines what businesses must do to comply with L8. This is a more practical guide. These measures include risk assessments, monitoring and control of Legionella risk. Divided into three parts:

- Part I - Cooling Towers
- Part II - Hot & Cold Water Systems
- Part III - Any other risk systems (specifically where water spray is produced through an aerosol)

HTM 04-01

The Health Trust Memorandum (HTM) 04-01 relates to all healthcare sites including public and private hospitals, clinics and medical centres. Similar to L8 and HSG 274, HTM 04-01 is a more stringent form of Legionella control designed to protect those most vulnerable to Legionella, including elderly and immunosuppressed patients.
MANAGING THE RISK

In order to measure the Legionella risk and determine the correct control measures, temperature readings must be taken from the water system and checked against the temperature parameters outlined in HSG 274. Entire hot and cold-water systems must undergo comprehensive inspection and assessment, checking against for every possible risk.

The most significant of these risks include:

- Dead legs (obsolete pipework where water can stagnate)
- Flexible hoses manufactured with EPDM rubber which can encourage the growth of Legionella
- Major assets such as water system, cold storage tanks, calorifiers (hot water heaters) and cooling towers
- Assessment of existing Legionella control measures on site, including examination of any relevant log books, policies and procedures
- Review of any existing water treatment programme

Once the risks have been identified, relevant remedial works must be prioritised according to the level of risk. Completing these remedial works will reduce the building’s Legionella risk and typical remedial works can include:

- Removal of obsolete pipework. Cleaning and disinfection of calorifiers and tanks
- Management control actions including reviews of log book management, procedures and processes
- Selective pipework reconfiguration

CLEARWATER AND SAFECARE: MITIGATING THE LEGIONELLA RISK

Clearwater is a trusted provider of independent, responsive, high quality water treatment and monitoring across a wide range of sectors in the UK and Ireland.

As Clearwater’s risk assessment consultancy arm, SafeCare provides expertise in Legionella risk assessments, fire risk assessments, air quality assessments and kitchen extract assessments.

Both SafeCare and Clearwater operate to the ISO 9001 standard. This internationally recognised standard specifies requirements for a quality management system and operating to ISO 9001 ensures that we consistently meet the changing requirements of our customers and the regulations to which they are required to operate.

Alongside ISO 9001, Clearwater’s quality of service is also underpinned by ISO 14001 and 18001 accreditations.

Clearwater is also registered with the Legionella Control Association. The LCA is a voluntary organisation comprising providers of services and products concerned with the control of Legionella bacteria in water systems. This membership enables Clearwater and SafeCare to work to a recommended code of conduct for service providers concerned with controlling the risk of Legionella.
MORE THAN A THIRD-PARTY WATER TREATMENT PROVIDER

Many businesses that acknowledge the importance of Legionella risk control choose to invest in training for the personnel responsible for their water systems.

Some businesses choose to invest in training to support their staff while enlisting third party water treatment providers to assess the risk in their systems. Others choose to place the full responsibility on their own personnel and invest in more comprehensive training.

SafeCare is City and Guilds Accredited and demonstrates its Legionella control and risk assessment expertise through internal and external training, courses including training for other water treatment providers.

SafeCare’s bespoke City and Guilds courses tailored to the Legionella control requirements of individual customers. Customers can choose to have these courses take place on their own premises or at a venue provided by SafeCare.

SafeCare’s Legionella control courses can include both classroom-based study as well as practical exercises with the aim of teaching course participants how to undertake routine temperature checks and how to successfully inspect major hot and cold-water system assets. Clearwater’s Technical Training Academy is an exclusive state-of-the-art, hands-on training facility in Redditch, Worcestershire.

Clearwater would like to give special thanks to Mike Hunter for contributing his valuable expertise to this whitepaper. Mike provides the UK water industry with expert knowledge on the management and control of Legionella and has served as Vice Chairman of the Legionella Control Association (LCA).