



## **Management of Legionella**

### **Guidance Notes for LBC Premises Managers and Schools**

**July 2013**

## Introduction

---

This document contains corporate standards and guidance on the management of *Legionella* in Luton Borough Council (LBC) premises. It is the responsibility of managers in control of premises to ensure that water systems are managed in line with this document in any premises under their control. **It is to be read in conjunction with LBC's policy document entitled *Legionella* Policy, Practices and Procedures, Operational Non-Housing Properties and Schools: Version 1.1, LP2013, which can be found on the Council Intranet.**

Further guidance may be obtained from Fixed Assets Division (FA), a specialist water hygiene contractor, or your Departmental Safety Adviser.

## Manager's Checklist – *Legionella*

---

1. Do you understand what Legionnaire's disease is, the possible routes of infection and the conditions in which *Legionella* bacteria may thrive?
2. If you are not using FA to manage water systems, has a 'Jointly Accountable Responsible Person' been identified?
3. Has a *Legionella* risk assessment been carried out?
4. Has a *Legionella* site logbook been created?
5. Have remedial actions been taken to deal with any issues identified by the risk assessment?
6. Do you have systems in place for monitoring water systems?
7. Are you aware of work that is carried out on the water system(s) of your premises?
8. Do you know what actions to take if a case of Legionnaire's disease is suspected or confirmed?

If your answer to any of these question is no, then it is likely that you are currently in breach of your legal duty to control *Legionella* bacteria in water systems at your premises! Please contact FA (01582 546335).

## Background information on *Legionella*

### What is Legionnaire's disease?

Legionnaire's disease is a potentially fatal form of pneumonia which can affect anybody of any age. It was first diagnosed in 1976 following an outbreak in Philadelphia, USA at a convention of the American Legion being held at a hotel and is how it became so named. Healthy people can develop Legionnaire's disease but there are a number of factors/conditions in people that increase the risk, these include; smokers, alcoholics, persons with weakened immune system, diabetes, and chronic respiratory complaints or kidney disease. The risk of contracting Legionnaires disease increases with age with those over 40 being of greater risk and healthy children only rarely being infected.

The disease begins quite abruptly with high fever, chills, headaches and muscle pains within 3-16 days of being exposed although longer periods of incubation have been documented, most cases develop between 3-7 days of being exposed. Usually a dry cough will soon develop, and many patients experience difficulty with breathing, symptoms may also include diarrhoea and vomiting and those infected may become confused or delirious. One of the major difficulties in diagnosing Legionnaires disease is that the illness is not "A-typical" as in that not all patients will display the same symptoms and of the symptoms described individuals could display all or only some of them. The disease can be effectively treated with specific antibiotics but the diagnosis of the disease can only be determined by laboratory tests, which take several days.

Since the disease was first diagnosed in 1976 there have been over 50 species of *Legionella* bacteria identified, the majority of cases identified in the UK have been attributed to *Legionella* pneumophila serogroup 1 and this is the organism this guidance is primarily aimed at controlling but any of the species can lead to infection and must be controlled.

*L. pneumophila* is also responsible for a short feverish form of the illness without pneumonia, known as **Pontiac fever**. Its incubation period is typically between 2-3 days. Another species of *Legionella*, *L. micdadei*, is responsible for a similar form of the illness without pneumonia called **Lochgoilhead fever** after an outbreak in Lochgoilhead, Scotland. The incubation period can be up to 9 days. A high percentage of those exposed to this agent tend to be affected. However, there have been no recorded deaths associated with either Pontiac or Lochgoilhead fevers. Any of the illnesses associated with the *Legionella* bacteria have the collective name of legionellosis

### What are the possible routes of potential infection?

Legionella bacteria occur naturally in locations such as rivers, lakes, and reservoirs, it is also present in very small quantities in the mains water supply. In LBC premises these small quantities in the mains water supply can multiply to dangerous levels in an unmanaged water system, *Legionella* bacteria may be found in:

- Domestic water systems in schools, office buildings and Homes for the Elderly etc.
- Whirlpool or hydrotherapy spas.
- Fountains with fine sprays.
- Locations where aerosols may be formed such as showers, taps, or drinking water fountains.
- Cooling Towers.
- Any vessel which stores water over a period of time which is not controlled.

The most likely route for infection is by direct inhalation of bacteria carried by water droplets. The spread and life of the bacteria will depend on ambient temperature, relative humidity, sunlight, wind strength and direction.

### **In what conditions does *Legionella* thrive?**

*Legionella* bacteria will thrive in any water system that is conducive to its life cycle. The optimum temperature at which the bacteria will multiply is between 32°C and 42°C but can multiply through the range of 20°C and 45°C.

The bacteria will survive at higher temperatures, but the survival rate decreases from a matter of hours at 50°C, to one minute at 60°C, whilst at 70°C the organism is killed instantaneously. Below 37°C the multiplication rate decreases and can be considered to be insignificant below 20°C.

Bacterial growth will be encouraged by water systems suffering from stagnation, or which contain certain materials that may serve as a source of nutrition to the bacteria. Contaminated water only presents a risk when dispersed into the air as an aerosol, which may then be inhaled. The fine particles can remain airborne for a long period and small droplets have the potential to penetrate deep into the lungs and cannot be easily expelled. Larger droplets evaporate and become smaller but still contain the initial number of organisms.

## **Appointing a ‘Jointly Accountable Responsible Person’**

All sites that have devolved funding (typically schools) must appoint an individual to act as the ‘Jointly Accountable Responsible Person’ for *Legionella* management at site. This person will be the individual that holds the responsibility for the management of the site and typically will be the Headteacher or the most senior person with effective day to day control of the site on non school buildings. Whilst it is possible to delegate the duties for others to manage, the responsibility will usually reside with the Headteacher/senior person as the ‘Jointly Accountable Responsible Person’

The ‘Jointly Accountable Responsible Person’ is the person or persons with responsibility for the management of *Legionella* risks and water systems at that premises. Their responsibilities include:

- a) Appointing a consultant to act on their behalf to ensure that the system is effectively maintained with appropriate sampling, inspections, checks and modifications carried out. (This could include checks which otherwise would be done at the site level.)
- b) Ensuring contact arrangements are in place for all ‘Responsible Person(s) and persons with designated duties, which are documented and made known to relevant employees.
- c) Ensuring that the tasks detailed in Appendix 1 are carried out.
- d) Ensuring that all persons designated with a duty have the time, resources, knowledge and training to carry out that duty.

*FA offers a buy back scheme under the schools SLA agreement process, which offers schools assistance in managing Legionella at site. This scheme offers direct support in assisting the Jointly Accountable Responsible Person in meeting their duties.*

*FA provides this service free to all corporate sites although some services may be charged for at properties with Trust status.*

*You must formally write and inform FA of whom has been appointed as Jointly Accountable Responsible Person.*

## **Legionella risk assessments**

---

### **Legionella risk assessments**

A *Legionella* risk assessment is a site-specific document that details the findings of an examination of the entire water system within the premises. The primary purpose is to identify if there are any parts of the system that might support or enable the growth of the *Legionella* bacteria and therefore present a risk by contaminating the system.

### **Who carries out the *Legionella* risk assessment?**

Appropriately qualified person(s) must carry out *Legionella* risk assessments in line with **BS8580:2010: Water quality. Risk assessments for *Legionella* control**. This will usually be a specialist contractor/consultant. In all FA managed premises (i.e. schools that have bought back), risk assessments will be organised and managed by FA. The risk assessments will be charged as an extra to the SLA and costs will be notified to the school/Director of Children and Learning and may be chargeable to some properties which have Trust status.

### **Who reviews and updates the risk assessment?**

To remain valid, *Legionella* risk assessments must be reviewed at least every 2 years, or earlier if required, and updated as necessary. In all FA managed premises, FA will arrange for *Legionella* risk assessments to be reviewed and updated at appropriate intervals.

The risk assessment needs to be reviewed whenever-

- The monitoring regime indicates that the control is/has become ineffective or the validity of the assessment is in doubt
- Changes to the water system have been carried out
- If a case of Legionnaires disease is associated with the building/system
- Changes to the use of the building or its management
- The way the water system/s is/are monitored or maintained

If the building/organisation is carrying out alterations to the building/water system without engaging FA then it is the responsibility of the Jointly Accountable Responsible Person to notify the Responsible Manager (as detailed in LBC *Legionella* Policy, Practices & procedures 2013: Version 1.1, LP2013.) in FA

### **What about premises not using FA?**

At premises where the responsibility for maintenance is retained (i.e. premises not using FA to manage water systems) the 'Jointly Accountable Responsible Person' must make arrangements with an approved water hygiene consultant or specialist contractor for risk assessments to be carried out and reviewed as/when detailed above.

### **Where should the risk assessment be kept?**

The risk assessment should be accessible to individuals with responsibility for completing the log-book and the site's 'Jointly Accountable Responsible Person'.

## **Legionella site logbooks**

---

### **What is a *Legionella* site logbook?**

The site logbook summarises the key findings of the risk assessment and identifies the steps necessary to monitor and manage the water systems. Logbooks should provide a detailed record of; water treatment regimes, chemical dosing, cleaning and disinfection, maintenance, inspections, monitoring results, laboratory reports, temperature readings and any physical, chemical, and biological parameters measured.

### **Where should the logbook be kept?**

The logbook should be accessible to individuals with a responsibility for completing the logbook, and the site's 'Jointly Accountable Responsible Person'.

## **Remedial actions**

---

### **Repair and maintenance works**

The *Legionella* risk assessment may identify remedial actions, such as physical changes to the water system, which are necessary to control *Legionella* risks.

In all FA managed premises, remedial actions (i.e. repair and maintenance works) that have been identified by the risk assessment will be organised and managed by FA. The funding for these works will be the responsibility of FA in corporate buildings or of the managers in control of the premises (i.e. Schools responsibility, some Trusts).

### **Capital works**

The *Legionella* risk assessments may highlight repairs or remedial works that are greater than reactive repairs, or they may highlight improvement works that will negate the need for some routine checks, or to improve the efficiency of the system. Such remedial works are invariably improvements with the responsibility for funding lying with the managers in control of the premises.

For schools or properties with fully devolved budgets, normal capital funding limits will apply i.e. Landlord will provide funding for capital works in excess of 15k on a priority basis.

### **What about premises not using FA?**

At premises where the responsibility for maintenance is retained and FA are not involved in managing *Legionella* control at site (i.e. premises that have not brought back FA to manage their water systems) the 'Jointly Accountable Responsible Person' must make arrangements for carrying out all remedial actions identified by the *Legionella* risk assessment.

## **Monitoring water systems**

---

Where a consultant, contractor or staff member is employed to undertake a role in regard to *Legionella* management, it is important that their role is documented and that checks are made by the premises manager to ensure that all the necessary tasks are carried out.

### **What checks/tests need to be undertaken?**

Appendix 1 details a series of checks that could be undertaken by either a specialist contractor or on-site staff.

### **What checks/tests will be arranged for FA managed premises?**

At FA managed premises, FA will manage and organise six monthly and annual inspections of water systems (as detailed in Appendix 1), highlighted through your bespoke risk assessment.

### **What checks/tests must be carried out at site level?**

At FA managed premises, weekly and monthly checks (as detailed in Appendix 1) should be carried out by on-site staff, unless alternative contractual arrangements are made with FA. If in doubt of what tasks your staff should carrying out contact the Responsible Manager in FA who can provide training or clarification.

### **What checks/tests will be arranged for self-managing premises? (i.e. Premises not using FA to manage their water systems)**

No checks/tests will be arranged by FA at premises where the responsibility for maintenance has been retained by the premises. The 'Jointly Responsible Person' should decide the extent to which checks are to be undertaken by on-site staff, or an appointed approved/specialist contractor.

The Responsible Manager will audit your *Legionella* control at site twice a year on behalf of the Responsible Person.

### **Who will provide training for undertaking inspections and monitoring/checks?**

At FA managed premises, FA will organise appropriate training for the staff members to enable them to carry out weekly and monthly inspections/checks.

At premises where the responsibility for maintenance has been retained, the 'Jointly Accountable Responsible Person' must arrange training through an approved water hygiene contractor, or a relevant training institution. Training and competency is required at every level of the process, and competency must be demonstrated by certification.

## **Physical changes to water systems/installations**

---

Premises managers should be aware that physical changes to water systems (e.g. new pipes, installation of showers, etc.) may increase the likelihood of *Legionella* bacteria appearing. For example, if a tap is removed and the pipe work left in place, it will create a new 'dead-leg' in the system that would then act as a location where the bacteria may proliferate.

All works must be undertaken by suitably qualified contractors and must be in accordance with all standards and guidelines inclusive of but not exclusive to-

- Legionnaires disease: The control of *Legionella* bacteria in water systems. Approved Code of Practice and Guidance L8 (**ACoP L8**)
- **BS8558:2011** Guide to the design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages. Complementary guidance to BS EN 806
- **BS EN 806-5:2012** Specifications for installations inside buildings conveying water for human consumption. Parts 1-5
- All products must be WRAS (Water Regulations Advisory Scheme) approved

Where works on water systems are organised through FA they will arrange for all works to be carried out in accordance with the *Legionella* Approved Code of Practice (ACoP).

Where works on water systems are **not** organised through FA, the 'Jointly Accountable Responsible Person' is responsible for ensuring that all works comply with the ACoP.

If you appoint FA to assist you in *Legionella* management, works to your water systems that are not organised by FA will not be permitted without prior written consent by FA. Failure to adhere to this may result in FA withdrawing its services.

Works carried out without the consent of FA which cause a potential risk in regards of *Legionella* control may be rectified by FA in default who can instruct a contractor to rectify or make safe and recharge all costs.

## Action when there is a suspected or confirmed case of Legionnaires disease

If an outbreak of Legionnaire's disease is suspected that may be attributed to the water system within a building, or where urgent action is required following routine inspections, the following course of action must be taken:

(An 'outbreak' is defined by the Public Health Laboratory Service, as two or more confirmed cases of Legionnella occurring in the same locality within a six month period.)

- If the issue has been identified by the premises and they are a premises under FA managed control, they must notify FA as quickly as possible, who will then take all necessary actions required to control the situation.
- If as a consequence of works or inspections organised by FA an issue has been identified initially by a consultant or contractor, FA will notify the 'Jointly Accountable Responsible Person' and will then take all necessary actions required to control the situation.
- For premises not buying back with FA, the necessary actions must be managed and organised by the premises using a specialist consultant/contractor.
- The manager of any LBC premises (whether or not the water systems are managed by FA) must inform their Departmental Safety Adviser of any outbreak. The Departmental Safety Adviser will in conjunction with the Responsible Manager:
  - Monitor that the appropriate action has been taken.
  - Determine whether further advice is needed.
  - Determine whether the incident needs to be reported to the HSE and if it does, to ensure that a report is made.
  - Keep a record of the incident and carry out any necessary investigation.

The actions that should be taken in the event of an outbreak may include:

- The affected water service may be taken out of use, to ensure that any part of the water system that is suspected of being contaminated is not used. This may include ensuring that all outlets connected to the water system are made unavailable for use by the fitting of locks and barriers wherever possible and/or by the posting of signage/notices instructing all staff and others not to use the water outlets or system.
- The recording of an 'Events Diary' to document the extent and nature of the problem and record all actions taken from initial reporting of the outbreak to its conclusion.



## Other health and safety hazards

---

The management of water systems can create other health and safety hazards. For example:

- The chemicals required to treat water systems may require a COSHH risk assessment.
- Access to parts of water systems may involve working at height, or working in confined spaces.

For further guidance on other health and safety issues, please consult your Departmental Safety Adviser.

## Appendices

### Frequencies recommended by the L8 Approved Code of Practice

11 of 15

Cold water services	Check and record water temperature remote from ball valve and mains temperature at ball valve. Note maximum temperatures recorded by fixed max/min thermometers where fitted.	Six monthly	Specialist contractor
	Check and record that temperature is below 20°C by running the water from tap for up to two minutes in the sentinel taps.	Monthly	On site staff/or Specialist contractor
	Check and record representative number of taps for temperature (as above) on a rotational basis. To ensure that all taps are checked at least once a year	Monthly	On site staff/or Specialist contractor
	Visually inspect cold water storage tanks and carry out remedial work where necessary.	Annually	Specialist contractor
Thermostatic Mixing Valves (TMV's)	TMV's should be serviced annually and a representative number checked monthly on a rotational basis to ensure they are operating with the design specifications	Monthly	On site staff/or Specialist contractor
Shower heads	Dismantle, clean and de-scale shower heads and hoses	Quarterly or as necessary	On site staff/or Specialist contractor
Little-used outlets	Flush through and purge to drain, or purge to drain immediately before use, without release of aerosols	Weekly	On site staff/or Specialist contractor

Set up Log Book (One per site)	To set up on site log book as laid down within ACoP L8	Specialist contractor
Calorifiers & random showers	To carry out quarterly <i>Legionella</i> sampling(if considered necessary)	Specialist contractor
Cold water storage tank Sentinel outlets Random outlets	To carry out six monthly bacteriological sampling.	Specialist contractor

**Please note.** All tasks noted as 'on site staff/specialist contractor' are considered suitable to be carried out by on site staff, but may be contracted out where premises are not able to carry out this work or prefer to contract it back to the specialist contractor. On site staff will only be allowed to carry out these functions if they have received appropriate specialist training organised by FA. Funding for training will be the responsibility of the premises management. **FA can organise specialist contractors to carry out works/testing/monitoring for sites but this will carry a management and contract fee dependent on the level of SLA bought in by the premises.**

## Definitions

### Sentinel Taps

- For Hot water services this is the first and last taps on a re-circulation system.
- For cold water systems these are (or non re-circulating hot water systems), the nearest and furthest taps from the storage tank/mains supply.

The choice of sentinel taps may also include other taps that are considered to represent a particular risk.

## Appendix 2

### Legionella Sampling

Action levels and required responses following positive results from *Legionella* testing of water systems

Type of bacteria	Number of bacteria	Action	Response
<i>Legionella</i> pneumophila serogroup 1	>1000 cfu/l (cfu colony forming units)	System shut down and disinfect	Immediate when notification is received
	>100 <1000 cfu/l	Shut down shower systems Pasteurise hot water systems and flush through all water outlets Disinfect hot & cold water systems	Within 48 hours
	<100 cfu/l	Pasteurise hot water systems and flush through all water outlets	Within 72 hours
Any other <i>Legionella</i> species	>1000 cfu/l	Pasteurise hot water systems and flush through all water outlets	Within 48 hours
Ongoing actions		Resample system until two consecutive sets of clear samples are received	Initial actions to be completed immediately, try to identify the cause of the contamination and set up a remedial course of measures to prevent re-occurrence.

## Appendix 3

Luton Borough Council structure chart for the control of *Legionella*



