

16.12.03.

**STANDARD PROCEDURE FOR THE CONTROL OF LEGIONELLA BACTERIA  
IN WATER SYSTEMS**

**FOR**

**OLDHAM MBC PUBLIC BUILDINGS**

## LEGISLATION

The Control of Substances Hazardous to Health Regulations 1988 relates to the risk from hazardous microorganisms, including Legionella and chemicals such as biocides and disinfection agents. Under these regulations, risk assessments and the adoption of appropriate control measures are required to be put in place.

L8 (2000) is the Approved Code of Practice and Guidance for the control of Legionella bacteria in water systems and further sets out the statutory requirement for dealing with risk. This applies to all premises with a water system/s.

HSC L8 [2000] includes consideration of the development of new control technologies and takes account of a number of points that have arisen in the practical application of the first edition.

C.I.B.S.E. TM13(2000). This Technical Memoranda offers collective advice on how to minimise the risk of Legionnaires disease from engineering services in buildings and complements and enhances HSC L8(2000).

Health Technical Memorandum 2040 [Healthcare Premises]. Provides recommendations, advice and guidance on controlling Legionella in healthcare premises. It is applicable to new and existing sites and is for use at various stages during the inception, design, upgrading, refurbishment, extension and maintenance of a building. Although not legislative (apart from where applicable to healthcare premises) it sets good practice.

BS 6700: 1997 Specification for design, installation, testing and maintenance of services supplying water for domestic use within buildings and their cartilages.

## **SPECIFICATION**

Specification for the Identification and Assessment of Risk of Legionellosis of Oldham MBC Public Buildings.

HSC L8 [2000]

COSHH Regulations 1988

Health and Safety at Work Act 1974

Health Technical Memorandum 2040 [Healthcare Premises]

A suitable and sufficient assessment should be carried out to identify and assess the risk of Legionellosis from work activities and water sources on the premises and any necessary precautionary measures.

The purpose of the assessment is to enable a valid decision to be made about

- a) The risk to health, ie whether the potential for harm to health from exposure is reasonably foreseeable unless adequate precautionary measures are taken.
- b) What measures for prevention, or adequate control to minimise the risk from exposure to legionella, should be taken.

## **INTRODUCTION**

The procedure for the control of Legionella bacteria in water systems within Oldham MBC Public Buildings properties shall be in accordance with the Approved Code of Practice HSC L8 (2000).

Legionellosis is the term used for infections caused by Legionella pneumophila and other bacteria from the family Legionellaceae. Legionnaires disease principally affects those who are susceptible due to age, illness, immunosuppression, smoking etc and may be fatal. Legionella is widespread in natural sources of water.

Infection is attributed to inhaling Legionella in droplet form small enough to penetrate the lungs. Most outbreaks of legionella have been attributed to water services in buildings, cooling towers and spa baths.

The majority of Oldham MBC properties house some kind of water storage system which is susceptible to bacteria, therefore deeming it necessary to have procedures to minimise the risk of Legionellosis.

## **MANAGEMENT**

The Assistant Director, Corporate assets & Facilities Management is the designated person responsible for the identification and assessment of risk programme for the prevention of Legionellosis. Whether the work is being carried out by contractors or in-house personnel. However, it is the responsibility of the respective budget holders, when notified by the Assistant Director, Corporate assets & Facilities Management ensure that all actions recommended is carried out.

The Assistant Director, Corporate assets & Facilities Management shall have the co-operation of all managerial staff in controlling the risk of legionella.

The Assistant Director, Corporate assets & Facilities Management shall be notified of any remedial work being carried out on any water distribution pipework concerning, cold water services belonging to water storage tanks and domestic hot water services. All pipework shall be disinfected after work is completed and relevant certification forwarded to the Assistant Director, Corporate assets & Facilities Management to allow the premises log book to be updated.

Constant auditing of work in progress, planned maintenance procedures and monitoring regimes is essential, and all log books up dated.

In the event of a POSITIVE water sample returning from the laboratory or any untoward findings, the said reporting procedure shall be adhered to. All information received shall be relayed to the relevant Director of the managing department for immediate action. If no instruction has been received to carry out remedial works within 24 hours, the request shall again be made in writing, a copy to the Health and Safety Officer and to the Chief Executive.

In the event of the Assistant Director, Corporate assets & Facilities Management being unavailable, the Reporting Procedure shall be adhered to (see Appendix 1).

Communication shall be FAIL SAFE.

## PROPERTIES

All public buildings that have water services which are susceptible to colonisation by Legionella.

The establishments shall be split into risk areas. (A) high risk areas, which include occupants that are susceptible ie healthcare premises etc; and (B) low risk areas.

A) High risk areas include:

Social Services  
Sheltered Housing  
Leisure Centres (those including swimming facilities, spa baths etc) and all sports and changing facilities that include showers and heavy water usage.  
Special Schools  
Buildings with Cooling Towers  
High rise flats with central storage.

B) Low risk areas include:

Schools (including youth centres)  
Housing (high rise flats with local storage systems)  
Hostels  
Public Buildings with low density of water services, except buildings with cooling towers.  
Depots  
Leisure Services (parks, pavilions, those with minimum number of water services such as bowls pavilions etc)  
Commercial and office premises.

After the initial risk assessments, a scheme shall be established to follow the procedures set out in L8 (2000) which shall include the following; this will vary from site to site depending on the risk assessments. This is not an authoritative list and L8 (2000) shall be consulted to provide a comprehensive set of actions.

- a) Inspection of water storage tanks every six months
- b) Visual inspection of the hot water calorifiers annually
- c) Visual checks of temperatures and settings of calorifiers every month
- d) Temperatures of hot and cold water outlets every month (Sentinel taps)
- e) Legionella water samples to be taken annually (where appropriate)
- f) Cooling towers to be monitored on a weekly basis, to ensure biocide levels are acceptable, towers to be cleaned and chlorinated at least every six months. Legionella water samples to be taken quarterly.
- g) Cleaning and disinfection of shower heads (quarterly)
- h) Flushing of infrequently used outlets (weekly)
- i) Checking other outlets on a rotational basis over a 12 month period recording temperatures in log book

Most buildings water Risk assessments and logbooks are computer based. Information regarding assessments and the building's logbooks are recorded and filed on this programme which is accessible by the client departments. Monitoring and inspections of water systems is recorded in the logbook and the water risk assessment is updated following any works,

alterations or subsequent re-assessments. A tight control shall be established in certain establishments with the use of in-house staff, caretakers, duty personnel etc. This will entail monitoring, as set out in the individual Log Book/risk assessment on a monthly basis. Staff will be trained to carry out the basic tasks of:

- a) Visual checks of temperature readings of calorifier
- b) Temperatures of hot and cold-water outlets
- c) Run showers or any potential deadleg that is not used on a regular basis. All results to be noted in the site log book and signed.

## **TRAINING**

Lack of training and poor communication has all been identified as a contributory factor in outbreaks of Legionella. It is the responsibility of the department managing the property to ensure that all communication is properly defined and clearly set out.

Staff shall be trained to understand the need for measures to control Legionellosis and the need for care in the recording and reporting procedure. Basic instruction on record keeping and monitoring techniques shall be taught, with health and safety aspect in mind. Members of staff at each establishment shall be trained so that if one trained member of staff falls ill or leaves, the line of communication is unbroken. It is the managing department's responsibility to ensure staff are trained adequately and have basic awareness relating to water quality and Legionnaires disease.

## **AUDITING**

It is essential that "the responsible person" shall carry out continuous auditing of all log books on sites and the monitoring of all risk assessments being carried out.

After all risk assessments have been completed and the monitoring programme is established, the record shall be continually updated in accordance with the programme for the individual site and all documentation shall be kept in an accessible location for auditing. The Risk Assessment and logbook will be reviewed a minimum of once every two years.

## **DISINFECTION**

Water services shall be disinfected for any of the following reasons:

- i) New installations before being taken into use to remove contamination which may have occurred during construction
- ii) If a routine inspection shows it necessary
- iii) If the system or part of it has been substantially altered or entered for maintenance purposes in a manner that may lead to contamination
- iv) Following an outbreak or suspected outbreak of legionellosis or any other water borne infection/disease.

Disinfection shall be carried out in accordance with BS6700.

# **RISK ASSESSMENT FOR LEGIONELLOSIS**

**AT**

## **OLDHAM MBC PROPERTIES**

### **SCHEME**

The scheme shall consist of a risk assessment for the control of Legionella in water systems in identified properties.

a) **ASSESSMENT**

A risk assessment shall be undertaken of all water storage tanks, calorifiers, cooling towers and associated pipework which are susceptible to colonisation by Legionella. The risk assessment shall follow the Procedure L8 [2000] and the Approved Code of Practice for the prevention of Legionella. The assessment shall follow the guidelines in HSC L8 [2000].

b) **THE PROPERTIES**

Priority shall be given to the type "A" properties listed as High Risk. These include health care premises, elderly persons homes, where occupants are particularly susceptible. Properties which incorporate a cooling tower or evaporative condenser, leisure centres incorporating spa baths and swimming facilities; and premises incorporating showers.

c) **DISCRETION**

Total discretion shall be adhered to by the Contractor on any untoward findings during a risk assessment and also on results of any water samples taken.

All findings to be reported through the REPORTING PROCEDURE.(see appendix)

d) **ACCESS**

Access to all Oldham MBC properties shall be organised in a professional manner by arranging appointments with managerial staff at allotted sites. A number of sites are ex-directory, so appointments shall be made through the contract administrator.

e) **WATER SAMPLES**

Total Viable Cell Counts [Dip Slides] shall be taken during each risk assessment. If and when Legionella water samples are required, the contractor shall obtain two 1litre water samples in a sterile container, one from the hot water distribution system and one from the cold-water distribution system. The samples to be sent away to an independent UKAS accredited laboratory for analysis, within 48 hours.

f) **CERTIFICATES**

Chlorination and Legionella test certificates shall be inserted into the site logbook within 28 days of the test being taken. Copies to be sent to the Assistant Corporate assets & Facilities Management

g) **MONITORING REGIME**

Monitoring shall be carried out as prescribed by HSC L8 [2000].

On completion of a risk assessment a monitoring regime shall be formatted, it shall then be inserted into the site logbook. It is proposed that all properties on the priority list (High Risk) shall be monitored bi-annually together with others where it is found necessary to do so. The remaining sites shall be monitored annually. All results from the monitoring regime shall be inserted into the site logbook, the assessor shall sign and date the logbook on every site visit.

Sites shall have personnel who have been instructed and who are competent to carry out the weekly, monthly, and quarterly monitoring regimes in-house although water sampling and the tasks requiring engineering skills shall be done by an approved contractor.

h) **SITE LOG BOOK**

On completion of the said risk assessment, a hardback site log book shall be formatted and delivered to site in a location to be agreed on, with the site manager.

The site logbook shall contain:

- i) Full site address
- ii) Name of site contact (managerial)
- iii) Name of risk assessor and the company name
- iv) Name of responsible person for Oldham MBC
- v) Date of assessment
- vi) Schematic drawing of water storage tanks and associated pipework
- vii) Detail of operation, relevant to the controlling the risk
- viii) Controls to be implemented, complete with schedule

A copy of the Risk Assessment shall be given to the contract administrator to be put on file.

i) **PHOTOGRAPHIC EVIDENCE**

Photographs shall be taken during a risk assessment, to highlight any pipe work defects, condition of water tanks, calorifiers, cooling towers etc.

**APPENDIX 1**

**STANDARD FORM OF RISK ASSESSMENT FOR THE CONTROL OF  
LEGIONELLA BACTERIA IN WATER SYSTEMS.**

**FOR**

**OLDHAM MBC PUBLIC BUILDINGS**

## ASSESSMENT

The assessment shall be in compliance with HSC L8 (2000) and include the following:

- (a) Temperature of stored water i.e. tanks, calorifiers, cooling towers, water heaters with header tanks etc.
- (b) Construction and dimensions of water storage tanks, calorifiers, cooling towers etc.
- (c) Internal condition of water storage tanks, calorifiers (if possible) and cooling towers.
- (d) If tanks have a BYE-LAW 30 kit i.e. screened overflows, insulation, lids etc.
- (e) Configuration of pipework to prevent water stagnation.
- (f) Deadlegs in the pipework distribution system.
- (g) Condition of showers and showerheads.
- (h) Water temperatures at hot and cold outlets after specified time of running.
- (i) Are drinking water labels installed to incoming mains.
- (j) Water softeners, water filters, strainers, on a planned maintenance programme.
- (k) Condition of cooling tower packs, eliminators etc.
- (l) Water emission from cooling towers.
- (m) Biocide and corrosion inhibitor on a water treatment programme.
- (n) Humidifiers and air washers in Air Conditioning ductwork.
- (o) Agitated water i.e. spa baths, pools, etc.
- (p) Susceptible occupants i.e. elderly, healthcare, etc.
- (q) Schematic diagram of pipework distribution systems.
- (r) Photographic evidence.
- (s) Microbiological sample (T.V.C.)

## REPORTING PROCEDURE FOR LEGIONELLOSIS

A risk assessment programme in compliance with HSC L8 (2000) for the control of Legionella bacteria in water systems in Oldham MBC Public Building Properties has been initiated. It is now necessary to put the following reporting procedure into operation and it must be adhered to. The circumstances for the procedure to be engaged will be as follows:

- (a) In the event of a positive water sample returning from the laboratory or anything that requires immediate action arising from a risk assessment.
- (b) Anything untoward being found during a risk assessment.

Must be notified to -

Assistant Director, Corporate Assets & Facilities Management - Mr D Mycock.

0161 911 4181/4185

Mech & Elec Dep't

0161 911 4184/4181

AND

Health & Safety and Emergency Planning Manager

0161 911 4691

In the event of the two said personnel being unavailable, the message shall be relayed to that Department's Executive Director responsible for that building or to the Senior Assistant Director.

The message shall state:-

1. Water sample POSITIVE
2. Address of site concerned
3. Location of water sample taken
4. Sero-group type
5. Bacteria count

The said message shall be logged stating time, date and signature of person receiving message. This in turn shall be immediately relayed to the relevant Director for immediate action. If the Director is unavailable, the published chain of command within the Department shall be adhered to.

**METHOD STATEMENT FOR CLEANING AND DISINFECTION OF COLD WATER STORAGE TANKS, TO INCLUDE ALL DOWN SERVICES**

Before commencing any work, a full programme of works shall be produced for the Assistant Director, Architecture and Building Control and the Site Manager, to ensure that the safest method of working shall be attained at no risk to employees/users. A method statement may be required to comply with the Health and Safety at Work Act/CDM Regulations.

All Outlets concerned to be labelled in a Suitable manner i.e. DO NOT USE – CHLORINATION IN PROGRESS, or similar.

Water storage tank to be isolated from down services; an authoritative detailed programme of work may be required prior to commencement of any works.

Pre-Cleaning disinfection to take place – system water disinfected using an oxidising biocide to minimise health risks to cleaning staff.

Tank contents to be pumped away to a foul drain, taking extreme care not to splash or allow contact with immediate areas.

Tank interior to be scraped of dirt, rust etc and washed thoroughly before removing all debris from tank base and bagging ready for removal.

Clean tank lids, ball valve and float assembly and overflow outlets.

Chlorinate in accordance with BS 6700 and L8 (2000).

All showerheads to be removed, washed in chlorine solution and replaced.

Upon satisfactory completion of all remedial works, remove all warning labels and debris from site.

All contractors to wear suitable protective clothing i.e. overalls, goggles, gloves etc.

Certificates to be issued on completion to the water quality Technician and site logbook updated in compliance with HSC L8 (2000).

The legionella-reporting logbook is situated in the Environmental Services Department, Henshaw House.

When a message is relayed to any of the personnel mentioned, action must be taken to minimise any risk.

If the message relates to a cooling tower the following procedure must be adhered to:-

1. Air cooling fan must be isolated to prevent further plumage being emitted.
2. Water circulating (condenser) pump to be isolated.
3. Refrigeration compressors to be isolated to prevent tripping out on high pressure.
4. DO NOT USE signs to be positioned on the said isolators. Cooling towers are under contract, the client department will be required to authorise the remedial works and the Water Quality Technician will instruct contractor to disinfect system, to BS 6700 and carry out any further necessary remedial works.

If the message relates to water storage tanks, showers, calorifiers, the following procedure must be adhered to:-

1. Inform Duty Manager not to use any showers or fill any baths because of a high bug count until system has been disinfected. Do not cause alarm. Note the Duty Manager's name and time of message being relayed. If possible lock the shower rooms to prevent use.
2. The client department will be required to authorise the works and the Water Quality Technician will instruct the contractor to carry out disinfection of the said tank and all down services, within 24 hours during normal working hours, to HSC L8 (2000).

If the message relates to swimming pools, spa-baths or any communal showers, the following procedure must be adhered to: -

1. The leisure centre/changing facilities must be closed down to prevent any risk to the public, areas to be emptied and locked off.
2. Plant relating to the said equipment must be isolated and DO NOT USE signs fitted.
3. The client department will be required to authorise the works and the Water Quality Technician will instruct the contractor to disinfect said area to BS 6700 as soon as possible to reduce down time of the said leisure centre/changing facilities.