

LEGIONELLA & WATER HYGIENE MANAGEMENT STANDARD



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1. INTRODUCTION

This Management Plan details how Cornwall Housing (CHL) will adhere to the requirements of its Compliance Safety Policy, legislation and approved codes of practice, industry standards and guidance. It also informs why and how CHL plan, assess, manage and control the conditions and factors that can lead to legionellosis, the collective name for infections caused by legionella bacteria.

These infections include Legionnaire's disease, a severe pneumonia with a relatively high mortality rate. Sixty one species of legionella have been identified with at least 28 known to be associated with disease in humans.

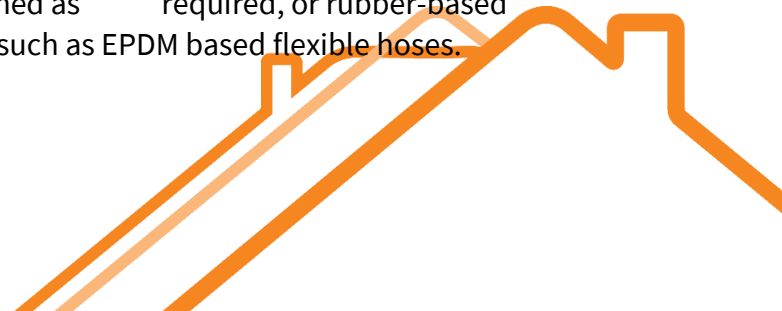
Everyone is at risk of infection, but the risk increases in people over 45 years of age, smokers, heavy drinkers, people suffering from chronic respiratory or kidney disease, diabetes, lung and heart disease or anyone with an impaired immune system.

Legionnaires' disease is normally contracted by inhaling very small droplets of water (aerosols), suspended in the air and containing the bacteria. The generation of aerosols can be observed in systems such as industrial processes, spa pools/hot tubs, showers and hot and cold water outlets. If contaminated, hot tubs and spa pools can expose many users in the immediate vicinity; showers and taps are most likely to lead to the exposure of individual users.

All water systems are susceptible to contamination with legionella via the water supply or dirt and dust entering the system.

Certain conditions can provide legionella bacteria with an ideal environment and means of infecting people, thereby presenting a reasonably foreseeable risk. For example, if:

- the water temperature in all or some parts of a system is between 20 – 45 °C, which is suitable for growth - a faulty or poorly designed system, for instance;
- it is possible for water droplets (aerosols) to be produced, dispersed and people exposed to contaminated water – such as a shower;
- water is stored and / or re-circulated;
- there are deposits and / or materials that can support bacterial growth, such as rust, sludge, scale, organic matter and biofilms - for example in dirty roof tanks that haven't been inspected and cleaned as required, or rubber-based plumbing products and components such as EPDM based flexible hoses.



2. REGULATIONS AND GUIDANCE

Sections 2, 3 and 4 of the Health and Safety at Work Act 1974 places a duty on employers to ensure the welfare of employees and non-employees, so far as reasonably practicable, and to ensure that

any premises, plant and machinery does not endanger the people using them; these sections are relevant to legionella control.

2.1 Regulations

The Control of Substances Hazardous to Health Regulations 2002 (COSHH), concerning the risk from exposure to legionella, and the Management of Health and Safety at Work Regulations 1999 (MHSWR) are the key regulations that require CHL to assess and control the risk from legionella bacteria.

COSHH provides a framework of actions designed to control the risk from a range of hazardous substances (including biological agents such as legionella bacteria) and take suitable and reasonably practicable precautions.

The MHSWR provides a broad framework for controlling health and safety at work. As well as requiring risk assessment, the regulations also require employers to have access to competent help in applying the provisions of health and safety law with established procedures for workers if there are situations presenting serious, imminent danger.

2.2 Guidance

CHL will adhere to relevant guidance and industry best practise including *the control of legionella bacteria in water systems*; the Health and Safety Executive's Approved Code of Practice and Guidance on the Regulations (ACOP L8, current edition) and Technical Guidance, HSG 274.

ACOP L8 gives practical advice on how to comply with the law in respect of legionella management and control. The ACOP and supporting guidance serve as the minimum benchmark to achieve compliance.

The current versions must be referred to at all times to ensure amendments are taken into account: these are available at:

<http://www.hse.gov.uk/pubns/priced/l8.pdf>

and



Any water fitting installed (both domestic and non-domestic) by in-house operatives or external contractors, must be listed within the Water Regulations Advisory Scheme (WRAS) directory. This quality assurance directory ensures that valves, showers, boilers etc. and any non-metallic material such as jointing compounds for example, comply with the Water Supply (Water Fittings) Regulations.

CHL staff and Developers must not install or permit contractors to install non - WRAS approved products or materials to CHL water systems.

The use of EPDM lined flexible hoses shall be avoided where reasonably practicable. In all cases flexible braided EPDM hoses shall be WRAS approved.

CHL corporate policies and procedures reinforce how CHL complies with its legal obligations.

2.3 Roles and Responsibilities

Inadequate management, a lack of training and poor communication are all contributory factors in outbreaks of Legionnaires disease. As such it is important that anyone involved in the risk assessment process and application of control measures is sufficiently trained, competent and aware of their responsibilities as prescribed in ACOP L8. The following positions are a requirement of ACOP L8 and have been adopted within the CHL management structure.

Duty holder

The Chief Executive is ultimately responsible for the business operation including Health and Safety. The Duty holder is responsible for ensuring that a suitable and sufficient risk assessment is undertaken for the exposure risk to legionella bacteria. The Duty holder has delegated responsibility for the completion of risk assessment to the appointed “responsible person”.

Key Responsibilities

- Appoint a competent person to take day-to-day responsibility for controlling any identified risk from Legionella bacteria.
- Ensure that all employees involved in work that may expose an employee or other person to Legionella are given suitable and sufficient information, instruction and training.



Responsible Person

The 'Mechanical Electrical & Water Hygiene Manager' has day to day responsibility for controlling risk of exposure to legionella bacteria including risk assessment, administration of control measures and remedial actions were reasonably practicable.

Further responsibility is delegated to the deputy responsible person for water hygiene 'Water Hygiene Compliance Supervisor' who will facilitate the day to day operational effort liaising with Legionella Control Association (LCA) approved contractors to complete works programmes and administer compliance monitoring regimes.

Key Responsibilities

- Ensure that suitable and sufficient risk assessments are carried out to identify and assess the risk of exposure to legionella bacteria from work activities and water systems.
- Act on the significant findings of the assessment to reduce the associated risk to as low as is reasonably practicable (ALARP)
- Review control measures to ensure that precautions remain effective.
- Retain suitable and sufficient records including risk assessment and precautionary measures.

Approved Contractors

LCA contractors involved in the application of control measures as detailed in current standards and guidance.

Key Responsibilities

- Ensure the named responsible person is aware of any limitations relating to knowledge or experience.
- Complete water hygiene related cleaning and disinfection activities in accordance with current standards.
- Conduct legionella risk assessments in accordance with BS8580.
- Carry out remedial actions and/or precautionary control measures.



3. LEGIONELLA RISK ASSESSMENTS

Potentially, all water systems can provide an ideal environment and source of legionella bacterial growth. This can be augmented where conditions allow and, therefore, present a reasonably foreseeable risk. With this in mind, CHL is required to, and shall, undertake legionella risk assessments to all water systems within its property portfolio.

The CHL risk assessment programme is an ongoing process and these assessments are live documents. The risk assessments take account of the factors which can lead to infection by Legionella bacteria:

- contamination
- amplification of bacteria
- transmission
- exposure
- susceptibility of individuals exposed.

CHL has adopted a systematic approach to assess all water systems and where appropriate introduce a written scheme for the prevention and control of legionella bacteria.

Previously detailed susceptibilities (paragraph 3, Introduction) are taken into account and help direct the programme. Priority is based on a risk profile basis in conjunction with the property types listed below:

3.1 Void Properties

Empty properties shall be risk assessed at the beginning of the void process. If a pre-existing risk assessment is available a review shall be carried out by an LCA approved contractor using a competent legionella risk assessor with the significant findings highlighted and subsequent remedial actions and control measures instigated whilst void and where reasonably practicable.

3.2 Independent Living Schemes and Communal Facilities X18

Due to the size and complexity of non-domestic water systems, the legionella risk assessment for each scheme shall be reviewed on an annual basis by the respective contractor delivering monitoring and management control measures. Where the assessment is no longer valid the assessing company shall forward a proposal for the re-risk assessment of the block to the deputy responsible person for review and where necessary completion.



3.3 Tenanted Domestic Housing Stock

Tenanted self-contained properties including, but not limited to flats, houses and maisonettes, shall have a generic legionella risk assessment undertaken as a desktop exercise which shall provide an organisational risk value in accordance with standards and guidance.

Physical risk assessments shall be completed at the void stage with the entire portfolio of housing stock assessed over the next 10 years where budget permits.

3.4 Tenanted Housing Blocks with Communal Water Services

Housing blocks with communal services, for example a block of self-contained flats each with its own mains water feed, communal water services such as laundries, taps and caretaking water facilities shall have a valid legionella risk assessment. The assessment shall be reviewed on an annual basis by the operative undertaking the water hygiene inspection and monitoring/deputy responsible person. Where a new risk assessment is required, it will be undertaken by a suitably trained, qualified and experienced operative from an LCA approved contractor.

The above approach is not exhaustive: any unique property types or scenarios shall be appraised on an individual basis, however, the duty to assess and act on the significant findings remains, so far as is reasonably practicable.

3.5 Miscellaneous Systems

Other one-off water systems which present a reasonably foreseeable risk shall have a valid legionella risk assessment, examples include, but are not limited to, pressure-washers, water-supplied fire suppression systems & water features.

3.6 Private Water Supplies

CHL recognises its duties to ensure that risk assessments are in place for all private water supplies and suitable and sufficient arrangements are in place to ensure that the health and wellbeing of users are maintained in accordance with The Private Water Supplies (England) Regulations 2016. Risk Assessments shall be in place for all sites and a specialist contractor appointed to complete all monitoring activities including sampling. Where services fall outside the scope of the regulations and current standards and guidance further actions shall be completed to safeguard health. Such measures may include.

- Placing a boil notice on properties;
- Delivery of bottled water until remedial actions/retesting can be completed;



- Completion of remedial actions on treatment systems;
- Sampling of water services;
- Cleaning and disinfection of water services;

3.7 Review period - All Legionella Risk Assessments

Current guidance cites that an assessment must be reviewed regularly, but more specifically when there is reason to suspect that it is no longer valid which could result from:

- a change to the water system or its use;
- a change to the use of the building where the system is installed;
- new information available 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.

CHL recognises its duty to review assessments regularly and as such all elevated risk properties 'X18' shall be reviewed annually. Lower risk housing blocks shall be reviewed annually by the deputy responsible person or LCA approved contractor. Domestic properties shall be reviewed at the void stage where a pre-existing risk assessment is in place.

3.8 Risk Assessments Format

CHL risk assessments shall conform to current standards and guidance, in particular BS8580, and shall include as a minimum:

- a description of the water system, including an up-to-date simple schematic diagram;
- an evaluation of the risk;
- safe operating procedures for the water system, including measures in place to control risks;
- limitations of the legionella risk assessment;
- arrangements to review the risk assessment regularly and particularly when there is reason to suspect it is no longer valid;
- clear allocation of management responsibilities;
- competence and training of key personnel;



4. CONTROL MEASURES

If, following review of the significant findings of an assessment, the risk of contracting legionellosis cannot be reduced sufficiently, effective control measures shall be devised and implemented where reasonably practicable. This is to reduce the risk to - as low as is reasonably practicable (ALARP). A common approach to risk mitigation is:

- ensure the release of water spray and / or aerosol is minimised / controlled;
- avoid conditions that support growth of microorganisms including legionella;
- ensure water will not stagnate by removing any redundant pipework and administering a suitable flushing programme;
- avoid the use of non WRAS approved materials;
- keeping the system and water clean;
- ongoing monitoring of any applied control measures;
- keep records of controls and other maintenance and repair work.

4.1 Temperature

CHL use temperature as its principal strategy to discourage the growth of legionella bacteria within water systems; this requires that:

- the hot water temperature within any storage vessel / calorifier is kept at a minimum of 60 degrees centigrade;
- flow temperatures at hot water outlets reach 50 degrees centigrade or higher within one minute of operating;
- where relevant, circulating temperatures around the hot water distribution circuit are maintained at $>50^{\circ}\text{C}$ at all times;
- flow temperatures at cold water outlets reach <20 degrees centigrade within two minutes of operating.
- key components of a system are periodically inspected for contamination, and where found, cleaned and disinfected;
- any infrequently used outlets or equipment are subject to a weekly flushing regime.

The risk of exposure will normally be controlled by these measures. To effectively maintain these, a written scheme shall be produced, the control measures documented within and applied to each respective site/system.



Written schemes are in place where CHL have communal systems; these are located at:

- Albion Court
- Anvil Court
- Bederkesa Court
- Brookside
- Chy Nampara
- Daubuz Close
- Diana Close
- Hendra Parc
- Polruan Hostel
- Rosevallon
- Trecarn Close
- Tregaer Flats
- Whites Close
- Wyndhurst Orchard
- Coronation Close
- Crows Nest View
- Chough House
- 1-11 Nor Manor Flats

Communal mains supplied systems such as those found in general housing blocks and residential accommodation typically present a low to medium risk; for such installations CHL follows the requirements of HSG 274. A written control scheme will not be produced unless referenced as a specific finding from the risk assessment.

Legionella monitoring and control regimes shall be delivered in the following property types as a minimum requirement:

Void Properties

As the vast majority of CHL properties benefit from central heating it is not reasonably practicable to operate their associated gas combination boilers for the duration of the void process, therefore a comprehensive flushing regime is required. This is delivered by contractors working in each void and logged in the CDM pack which is left on site.



Independent Living (ILS) Communal Facilities

Due to the risk of legionellosis associated with communal facilities and susceptibility of some residents, CHL shall operate a monitoring and management programme that includes weekly flushing of all communal outlets. This is undertaken by on-site ILS Officers. Monthly temperature monitoring, cleaning and inspection activities are undertaken by approved contractors with records available electronically.

Tenanted Housing Stock

HSG 274, part 2 (residential accommodation) advocates that all water systems require risk assessment; however, a simple assessment may show the risk from legionella as low; in such cases the findings of the assessment will be recorded and reviewed to understand and record what, if any, proportionate control measures are required and that the assessments remain valid.

Tenanted Housing Blocks with Communal Water Services

Housing blocks with communal water services such as those with self-contained flats, each with its own mains water feed, and communal water services such as laundries, communal taps and / or caretaking water facilities receive an appropriate level of monitoring and service.

Monthly activities include temperature monitoring and servicing of fixed assets such as water heaters and thermostatic mixing valves. The control regime will be devised from the significant findings of the risk assessment.

Miscellaneous Systems – Sprinkler Systems and Water Features

Control measures associated with other foreseeable risk system shall be delivered in accordance with the legionella risk assessment recommendations and the guidance within HSG 274 part 3: typical control measures will take the form of periodic inspection, sampling, cleaning and disinfection activities.

4.2 Supplementary Control Measures

Where compliant temperature regimes cannot be delivered on a respective water system and it is not reasonably practicable to undertake sufficient remedial actions to mitigate the risk then further consideration shall be given to supplementary control regimes which may take the form of proprietary chemical dosing and/or the use of ionisation systems such as silver/copper control. In all cases only control measures prescribed in HSG 274 & ACOP L8 shall be used referencing respective control levels and manufacturers guidance.



5. REMEDIAL WORKS AND ACTIONS

Examples of remedial works include removal or replacement of pipework dead-ends or dead-legs; non WRAS approved fittings and / or materials; faulty blending valves; storage tanks in a poor or contaminated condition.

Remedial actions are undertaken on a priority basis as informed by risk assessment and susceptibility of residents. The property types below provide further information on the approach to delivering remedial actions in each respective category.

5.1 Void Properties

Where reasonably practicable, outstanding remedial actions will be completed when a property becomes void; remedial actions will be derived from either a risk assessment review where a pre-existing assessment is in place, or a new assessment undertaken when a property becomes void. The risk assessor will place a follow-on service job for the relevant remedial actions to be completed whilst the property is void.

5.2 Sheltered Housing Communal Facilities

Remedial actions shall be completed in all communal areas where reasonably practicable. In tenanted areas, remedial actions will be completed where access permits.

5.3 Tenanted Housing Stock

Remedial actions derived from inspection and / or risk assessment will be reviewed and risk-rated to determine whether reasonably practicable before completion; low-medium risk remedial actions will be logged and completed when void or where resources permit; high-risk work shall be raised as a follow-on by the deputy responsible person for contractor completion.

5.4 Tenanted Housing Blocks with Communal Water Services

Any necessary remedial action identified during inspection and / or risk assessment will be completed where reasonably practicable on communal system components.



5.5 Miscellaneous Systems, Components and Controls

Remedial actions identified from inspection and / or risk assessment will be completed where reasonably practicable.

The following scenarios may prompt remedial action in the form of cleaning and disinfection of a water system:

- following an inspection
- following the replacement of plant, equipment and/or pipework;
- before commissioning a new system;
- in the event of an outbreak or evidence that widespread contamination is present within any system;
- where systems have been accessed for maintenance purposes i.e., servicing of a TMV;

Cold-water storage tank and hot-water heater inspections are completed annually as part of overarching maintenance inspections such as Air Source or Ground Source annual inspections.

All remedial works shall be logged on lifespan and reported on a monthly basis as part of the key performance indicators for legionella and water hygiene compliance.

6. WATER STORAGE

When an opportunity arises and where reasonably practicable, CHL will eliminate water storage, for example when electrical heating is replaced with gas-fired central heating served by a point-of-use combination boiler or during non-domestic heating and hot water system upgrades.

Where it is not been reasonably practicable to eliminate water storage, CHL will endeavour to reduce the stored volume: effectively increasing daily turnover of stored water in a system to lower the legionellosis risk.



7. SUPERVISION, TRAINING AND INFORMATION

7.1 Supervision

The deputy responsible person facilitates all day to day activities to ensure that CHL meets or exceeds its compliance obligations as required from ACOP L8 and HSG 274. Duties include but are not limited to:

- Creation of work programmes
- Liaising with contractors and tenants/customers
- Reviewing safe systems of work and risk assessments
- Completing on site audits and health and safety inspections on contractors completing legionella management control measures
- Completing post inspections on delivered remedial actions to ensure that they meet current standards and guidance.

7.2 Training

CHL provide suitable and sufficient information, instruction and training for staff involved in water hygiene compliance. Legionella awareness is delivered online via the Oracle HR system and includes a knowledge assessment. Any persons delivering legionella control measures on behalf of CHL shall receive a more in depth awareness course from a registered provider as part of a classroom session or online.

City and Guilds accredited water hygiene training is provided for CHL responsible person and deputy. regular refresher updates are also provided by external suppliers. Contractors must only use accredited apprenticeship-served competent plumbers to work on any water systems.

Water Management Society, industry conferences and seminars are an additional source of information that allows CHL to keep up to date with amended or new requirements.

7.3 Further water hygiene related information is available from the Responsible person & Deputy Responsible person, including:

- safe systems of work/method statements
- compliance monitoring documentation such as logbooks, templates, risk assessment.
- HSE Guidance and ACOP L8;
- COSHH assessments



8. CONTRACTORS

Contractor operatives must have completed a water regulations training and assessment course and a relevant apprenticeship.

To undertake water hygiene risk assessments contractors must be a member of the Legionella Control Association and accredited to undertake the relevant service on behalf of CHL.

9. DEALING WITH EMERGENCIES

Following notification of a positive legionella count from a UKAS accredited laboratory via CHL's approved contractor, CHL will follow the respective procedure, review the current legionella risk assessment and monitoring records for possible contributory factors that may support the growth of legionella. CHL will also investigate possible system issues such as incorrect temperatures, poor circulation, lack of use etc. Further sampling will be undertaken to ensure contamination is local. Should the wider system be found to be contaminated a full disinfection will be undertaken in accordance with table 1, below.

Table 1 Contamination levels and Actions

Legionella bacteria (cfu/l denotes colony forming units per litre)	Recommended actions
>100 cfu/l and up to 1000	If the minority of samples are positive, the system should be resampled. If similar results are found again, a review of the control measures and risk assessment should be carried out to identify any remedial actions necessary. If the majority of samples are positive, the system may be colonised, albeit at a low level. An immediate review of the control measures and risk assessment should be carried out to identify any other remedial action required. Disinfection of the system should be considered
>1000 cfu/l	The system should be resampled and an immediate review of the control measures and risk assessment carried out to identify any remedial actions, including possible disinfection of the system. Retesting should take place a few days after disinfection and at frequent intervals afterwards until a satisfactory level of control is achieved.



Where a positive legionella count has been detected all reasonable efforts shall be made to install a legionella filtering assembly at the point of use. This is to allow the outlet(s) to be used which will aid flow and prevent end user contact with legionella bacteria.

If widespread contamination of any communal water system or outbreak of Legionnaire's disease is confirmed the following must be notified:

- Head of Building Safety
- Head of Customer Services and Engagement
- Head of Housing Management
- Mechanical, Electrical & Water Hygiene Manager
- Executive Director of Asset Management
- Managing Director

10. DOCUMENTATION

All risk assessments are held electronically This ensures a record is readily available of changes that may affect an assessment and any re-evaluation of the risk.

All records, including risk assessment and risk assessment review, log books and log book review, flushing, disinfection, shower-descaling, thermostatic blending valve maintenance, schematic drawings etc. must be retained for a minimum of five years from the completion date and held on the CHL electronic document management system Docuware.

11. QUALITY ASSURANCE

All risk assessments are checked by the Water Hygiene Compliance Supervisor for validity, corrective actions, control measures and recommendations.

External suppliers undertake annual data integrity audits.

12. REVIEW

This Legionella Control Management Standard shall be reviewed as a minimum on an annual basis or sooner, should circumstances dictate; for example, following a change of regulation, policy, relevant procedures, ACOP, British standards, industry guidance, or following an outbreak of Legionnaire's disease or significant near miss.



13. KEY PERFORMANCE INDICATORS

CHL produce a range of key performance indicators to provide assurance of the state of business compliance. Indicators are provided in two formats, routinely to internal parties such as the board via a Homes and Neighbourhoods report and to the regulator as part of the prescribed tenant satisfaction Measures. Internal KPI's are referenced below for reference.

- Percentage of communal areas surveyed, Elevated Risk
- Outstanding remedial actions communal areas
- Overdue remedial actions communal areas

KPI information provided to the regulator for social housing in the form of a 'tenant satisfaction measure' include:

- Proportion of homes for which all required legionella risk assessments have been carried out.

KPI information is reviewed at senior management and board level. Any non-conformities are recorded and discussed at the monthly water hygiene management meeting with any associated mitigation instigated where reasonably practicable.



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