# KCC Infrastructure Policy & Guidance

# Policy and Code of Practice for the Management of Hot & Cold Water Systems

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## Document Audience & Classification

This policy is applicable to all who use Kent County Council Property and forms part of the formal corporate policy making structure.

This document is NOT PROTECTIVELY MARKED. Anyone can view the information and it may be published on the web or on paper.

Key Audience is for:

- ✓ Internal Infrastructure
- ✓ Internal Kent County Council
- ✓ Internal and External users of Kent County Council Services
- ✓ Consultants and Contractors working on Properties owned or Managed by Kent County Council.

# Contents

## Policy Statement

Kent County Council (The Council) is committed to protecting the health, safety and welfare of its tenants, employees, visitors, pupils, customers, contractors and members of the public. The Council recognises its duty of care under the 'The Health and Safety at Work Act 1974' (HASAWA 1974) to ensure as far as is reasonably practicable the health, safety and welfare of all. This extends to the risk from Legionella bacteria.

The main aim is to eliminate the risk of potential Legionellosis within the Council's property portfolio in order to prevent occupants being exposed to Legionella bacteria.

The Council will do this by ensuring that a Legionella policy and code of practice for the management of buildings is in place which details how water systems will be managed throughout its property portfolio.

As well as the HASAWA 1974, there are Regulations, Approved Code of Practice (ACoP) and guidance from the Health and Safety Executive (HSE) that apply to the control of Legionella bacteria in water systems. These are: -

- The Control of Substances Hazardous to Health Regulations 2002 (COSHH);
- The Management of Health and Safety at Work Regulations 1999 (MHSWR);
- Legionnaires' disease. The control of Legionella bacteria in water systems approved code of practice (ACoP L8)
- Legionnaires Disease – Technical Guidance HSG 274 (Parts 1-3)
- Guide for the auditing of water quality sampling BS 8550

A summary of the requirements of the above and for more information about Legionella is contained within this policy. See Appendix 7

This policy applies to all Council staff and its Partners/Consultants/Contractors involved with maintenance or the provision of water systems, supervising such work**, or issuing contracts for work. All must fully familiarise themselves with the contents of this document and implement the actions detailed within.**

**Works will only be undertaken by approved contractors.**

## 1. Introduction

The Council has prepared this policy to set out the action to be taken to comply with their duties under the HASAWA 1974 and associated Regulations and ACoPs.

The Policy:

- Clearly defines roles and responsibilities.
- Confirms the Council's resolve in preventing or minimising the risk from Legionella.
- Affirms the Council's commitment to have in place control measures that adhere to the risk assessment and comply with statutory requirements.
- Requires the Council to have a control system in place to ensure that measures are being implemented, are effective, records are kept, and the policy is reviewed on a Bi - annual basis or if there are changes to legislation.

This policy applies to all buildings owned or occupied by the Council. Where the Council does not own the property, it will establish who is liable for its maintenance. It will also ensure that they have a Legionella management plan in place and all relevant information is passed to the tenants and the Council. In cases where the liability cannot be established, GEN² will instruct a risk assessment to be carried out to ensure that staff can occupy the area and take appropriate steps for managing the risk, in the areas so far as is reasonably practicable.

## 2. Legislative Requirements

The Health & Safety at Work Act (HASAWA) 1974 requires employers and those in control of premises, to conduct their work in such a way that their employees and others will not be exposed to health and safety.

The Council will comply with their duties under the HASAWA 1974 within their property portfolio by effectively eliminating or reducing risk to the lowest level reasonably practicable for all customers, visitors, staff and contractors

The Management of Health & Safety Regulations (MHSAWR) 1999 and The Control of Substances Hazardous to Health Regulations (COSHH) 2002 requires The Council to undertake a risk assessment to identify and control known hazards associated with Legionella bacteria.

The Council ensures that a monitoring programme is in place which:-

- Identifies, assesses and controls risk
- Prepares a written scheme to reduce, eliminate or control the risks identified
- Implementation and management of the written scheme by appointing adequately trained and competent people who have managerial responsibility
- Maintaining all relevant records and monitoring controls

The risk assessments will be carried out to a prioritised programme on a 2-year basis with a review being carried out between the risk assessment, based on the vulnerability of the service user group, and the water systems that are likely to present the highest risks.

The control of Legionella bacteria in water systems Approved Code of Practice and guidance applies to the control of Legionella bacteria in any undertaking involving a work activity and to premises controlled in connection with a trade, business or any other undertaking where water is used or stored and where there is a means of creating and transmitting water droplets which may be inhaled, thereby causing a reasonably foreseeable risk of exposure to Legionella bacteria.

The Council carries out a risk assessment to identify and assess potential sources of exposure and introduce a course of action to prevent or control any risk.

## *3. Background to Legionella*

Legionella are bacteria that are common in natural rivers and lakes and artificial water systems (e.g. hot and cold water systems storage tanks, pipe work, taps and showers).

Legionella are usually associated with larger water systems, (e.g. in factories, hotels, hospitals and museums, and cooling towers), but they can also live in smaller water supply systems used in homes and other residential accommodation. Other potential sources of Legionella include spa and whirlpool baths, humidifiers, drinking water systems, water features and fire-fighting systems (sprinklers and hose reels).

Legionella can survive in low temperatures, but thrive at temperatures between 20°C and 45°C. Temperatures in excess of 50°C will kill the bacteria in 2hours and at 60°C in 1 minute.

Legionella bacteria can multiply in hot or cold water systems and storage cisterns which then can be spread. Although the generally high turnover and relatively low volume of water held in smaller water systems reduces the likelihood of the bacteria reaching dangerous concentrations, a risk assessment must still be carried out to identify and assess potential sources of exposure (e.g. in spray from showers and taps). A course of action must then be introduced to prevent or control any risk, which has been identified.

Legionnaires' disease is a potentially fatal form of pneumonia caused by the Legionella bacteria. It can affect anybody, but some people are at higher risk, including those over 45, smokers and heavy drinkers, those suffering from chronic respiratory or kidney disease, and people whose immune system is impaired.

## *4. Policy Objectives*

The Council will have in place the following: -

- A water hygiene risk assessment for each site: to identify and assess sources of risk from Legionella.

- Action plan: Prepare a written scheme (see appendix 8), which puts in place control measures that take account of the level of risk and prevents or reduces the risk from exposure to Legionella bacteria. This will form part of the risk assessment.

- Safe working practices: implement and manage the scheme of precautions and other measures in compliance of the Policy.

- Assurance of control: ensure that the Council's portfolio has an implemented monitoring and recording procedure, to ensure that the measures put in place are adequate and effective.

- Provide regular training for all those involved in the management of Legionella, ensuring they have a level of knowledge and competence appropriate with their level of responsibility.

- Risk assessments are carried out every other year and are reviewed the following year to the risk assessment or sooner if any significant changes occur to the system.

- Review this Policy Bi-annually and earlier if any new legislation has been introduced.

## *5. Who is the Policy aimed at?*

This Legionella Policy is aimed at:

- Employees.
- Contractors.
- Persons charged with the responsibility for the management of water systems at sites owned or operated by The Council.
- Persons managing and maintaining buildings, or who carry out maintenance and installation work for buildings occupied by The Council.

## *6. Roles and Responsibilities*

The Council has clearly defined the roles and responsibilities for managing water systems in buildings that are owned or leased (See Appendix 2) and have taken in to account the following:-.

- Ownership
- Financial Control
- Who is working under the control and direction of others
- Who has control and decides on budget spend

**Duty Holder**

Kent County Council will be regarded as the 'Duty Holder'. The 'Duty Holder' has the overall management responsibility for The Council. They have the responsibility for the strategic management of the Legionella policy and for ensuring the procedures and working practices are implemented.

**The Responsible Person(s)**
The Responsible Person(s) are appointed by the duty holder and include Gen² and TFM Contractors Responsible Person.

Gen² Responsible Person deals with the management of water hygiene and duties include:

- Gen2 Chief Executive Officer takes the role of Responsible Person on behalf of the Company but will from time to time delegate this function to a competent Manager within the Senior Leadership Team of Gen2.

- To report and manage all property related health & safety tasks on behalf of the Duty Holder.

- To ensure that the TFM Contractor and any other Contractor working on the Estate directly undertakes and discharges its duties effectively.

TFM Contractors Responsible Person manages the operations of carrying out all water hygiene tasks, including;

- To undertake and deliver all Health & Safety tasks within scope of the TFM Contract.

- To bring to Gen2 / KCC's attention all property related H&S tasks which require approval and deliver the tasks when spend authorisation is received.

- To perform duties of the on-site Responsible Person where the role has been delegated to the TFM Contractor.

**Competent Help**

The responsible person may identify people to undertake specific tasks to assist The Council in meeting its duty. These people and/or companies must be competent to carry out the tasks they have requested to complete.

All staff and contractors with any responsibilities are required to report any potential risks that they encounter and follow any procedures that have been put in place.

## *7. Information held on site.*

The information provided to premises will be in the form of a Water Hygiene Log Book. The Log book is an A4 folder containing all relevant Legionella information.

The Log book, once received, should be considered to be a working document, representative of the Legionella control activities for the building/s to which it pertains.

The log book should include but is not limited to:

Introduction: gives consideration to the mains water supply, stored hot & cold water systems with respect to temperature control and Bacteriological Standards

- Monitoring Regime: This section contains a tabulated listing of guidance recommended frequencies for Legionella monitoring control activities associated with water systems and services.
- Risk Assessment: This section contains the site-specific Legionella risk assessment. This assessment contains site survey information, data and forms the basis of the sites Legionella control. This report also contains information of remedial work requirements and/or addition control measures that will require implementation.

- Service Sheets: This section is where records of maintenance should be kept including, monitoring reports for calorifiers, water heaters, cisterns, sentinel outlets and any other reports relating to the hot & cold water system
- Sample Results: Results of any Laboratory Water Sample Analyses conducted in respect of Legionella Control from the buildings water systems and services.
- Emergency Procedures in the event of Legionnaires Disease Outbreak: This section of the log book contains information of a generic nature advising of the steps, precautionary actions and procedures necessary if there is an outbreak of Legionnaires Disease.
- Sample Procedures: this section will include sampling and testing protocols for bacteriological sampling from hot & cold water systems i.e. outlets, cisterns and also the correct sterilisation of sampling points.
- Cleaning and Disinfection: This section contains method statements that outline, in a generic manner, the tasks involved in the cleaning and disinfection for cold water storage cisterns, hot water storage and their associated services.
- Priority Corrective Action Form (PCAF): These forms are generated and outline corrective actions deemed necessary following observations made during sites visits. PCAFs are issued for works of an urgent nature that may be necessary to maintain Legionella control.
- Training Certificates: The guidance requires that any personnel involved in Legionella Control activities be trained and competent to conduct the necessary duties involves. Any certificates issued to personnel concerned with Legionella Control or aspects of Legionella Control are to be retained within this section.

It is the duty of the person who has day to day responsibility of the site to ensure everyone who needs to know about the Water Hygiene Log Book and its contents are made aware and follow the procedures, including those who work on the Hot & Cold Water Systems. Anyone using the Log Book will sign the register form in the front of the document.

## *8. Survey Programme*

While there will inevitably be common factors associated with many varied types of premises, the individual nature of each site will be taken into account and this will be ascertained by carrying out a site-specific risk assessment.

The Council is committed to operating a rolling 2-year risk assessment survey program. This consists of a full Legionella risk assessment in year 1 (as outlined below) and a follow up review in year 2

A full Legionella risk assessment will be carried out as stated in HSG 274 Legionnaires' disease. The control of Legionella bacteria in water systems. ACoP and carried out in accordance with the BS8580 (see appendix 7)

The council will review the assessment regularly on a two year rolling programme and specifically for premises where:-

- The existing risk assessment is no longer valid
- The building is newly acquired;
- The building is newly constructed;
- The water services have been substantially modified

## 9. Limitations of the Survey

There will be areas where the surveyor cannot gain entry to undertake a survey.

No access' or limited access' indicates that a full inspection was not possible because it was not possible to enter the room. This will be recorded in the risk assessment report as a high risk item and should be addressed by the responsible person.

- The surveyor will only survey safely accessible parts of the site
- Where accompanied access cannot be provided, the surveyor will limit the survey to reasonably detectable pipe work and assets.
- Where access to key areas of plant is not possible (such as water cisterns), the assessment will assume the worst case.

It is important that when a risk assessment is scheduled to be carried out, the contractor should book this in advance with the site and that a person with the knowledge of the building's water systems is made available to assist the surveyor.

## 10. The Risk Assessment Survey

The risk assessment survey will include identification and evaluation of potential sources of exposure and stipulate control measure on how to control or mitigate against these risks.

**Showers and Spray Taps (including emergency showers and eye wash stations)**

A high level of spray and aerosols can result from shower and spray tap operation. The risk of Legionellosis is higher, as infection can only occur if infected aerosols are inhaled.

Control measures include: -

- Cleaning and disinfecting shower and spray tap heads 3 monthly.
- Each showerhead should be cleaned and descaled.
- Record information and kept in Log Book

These tasks can be carried out by either a specialist contractor or site staff.

Emergency showers and eye wash stations should be subject to a 3-monthly flushing and disinfection maintenance regime conducted by either specialist contractor or site staff

**Hot Water Systems(s)**

The ideal growth temperature range for Legionella bacteria is 20-45°C. These temperatures are not unusual in poorly managed or poorly designed water systems. The combination of the above temperature range with the presence of scale, debris and stagnation within a hot water system will result in Legionella growth.

The Council adopts a temperature regime by maintaining stored water at 60ºC; with a minimum return temperature of 50°C.

Monthly temperatures should be recorded from the sentinel outlets (those closest to and furthest from each mains water entry point and the flow/returns on the calorifiers. The water

storage tank temperatures should be taken every six months and the condition of the tank should be recorded in the water log book. (additional sentinels may be selected in complex buildings) and to ensure compliance.

Other outlets should be checked at least once a year.

NB The most practical solution is to check sentinel outlets plus a selection of other outlets each month, so as to cover all outlets over the course of each year.

In large or commercial systems, due to high storage levels, stratification may occur in calorifiers. To avoid this a shunt pump (a circulation pump fitted to hot water service/plant to overcome the temperature stratification of the stored water) should be fitted and set to operate via a time switch, which will heat the entire contents of the calorifier to 60ºC for one hour per day. Where practicable, each system should be fitted with a circulation pump on the return leg.

Where site have a Building Management System (BMS) installed, sensors may be fitted to the flow and return legs of the system. This system can be used to confirm the correct operating temperatures of the system. Regular manual checks are to be carried out to confirm BMS temperatures.

Each calorifier must be subject to an annual maintenance inspection. If the inspection highlights internal problems, the calorifier must be isolated from the building circuit, drained down, and internal surfaces are inspected and cleaned. This procedure is carried out by a specialist contractor.

**Cistern(s) and cistern fed cold water systems**

The ideal growth temperature range for Legionella bacteria is 20-45°C. Cold water temperatures above 20°C can be found in some cold water systems. Presence of debris, stagnation and non-approved materials will contribute to Legionella growth. The aim is to maintain the water condition as is found in mains water. The maintenance regime is designed to keep temperatures below 20°C and to keep debris and stagnation at a low level.

The council adopts a temperature and inspection regime for the control of Legionella, for all identified storage cisterns. Water temperature must not exceed 20°C.

Monthly temperatures are to be recorded from sentinel taps by the site responsible person or Specialist Contractor. Records are to be kept in the Log Book for ongoing management.

Where temperature control is identified as poor, alternative means of control will be undertaken. One such means of control is via Chlorine Dioxide. The procedure for chemical control is described in section 15 of this Policy.

**Infrequently Used Outlets**

A disused or low use outlet, will allow localised stagnation of water within the pipework. Stagnation results in higher water temperature due to warming, and lower hot water temperature due to cooling, resulting in water temperatures which are ideal for Legionella growth.

To avoid this, outlets that are unused for a week or more must be flushed for 5 minutes on a weekly basis (see Appendix 6). This is particularly applicable to areas such as disabled toilets and shower rooms. The flushing can be undertaken by either site staff or a specialist contractor. Records for all such procedures will be filed in the Log Book.

Areas which are disused, but still hold water within the system are considered as a deadleg. Such unused or redundant pipework must be removed as soon as is practicable or drained down and clearly identified. This procedure should be carried out by a competent person or specialist contractor.

NB. The following vacation arrangements should be incorporated in a schools control measures, which will be unoccupied during holiday periods.

Due to the high numbers of rooms in schools, it is recommended that the following procedures are carried out during holiday periods and other low use periods to ensure L8 compliance:

- Flush the far ends of each floor on a weekly basis following the same procedure for flushing of little used outlets.

- Records of this task are too kept in the water hygiene log book for on-going management.

**Drinking Water Systems**

Generally, the risk of Legionellosis is low, but can become significant in large water systems where, due to low use, stagnation can occur with warming because of poor insulation or location of pipework. This can result in water temperatures in the 20-45°C range.

Drinking water and drink dispensers should only be attached to the rising main, where possible. These outlets are to be located in designated areas and must be suitably labelled ‘Drinking Water‘.

Cistern supplied water (deemed drinking water quality i.e. Boosted) shall be monitored and tested 6 monthly (see section on boosted/cistern water further on in this document).

The drinking water main, where reasonably practicable, is to supply at its extremity a urinal-flushing cistern, (or similar) programmed for 7-day operation in order to prevent water stagnation.

No alterations or additions to the drinking water supply can be made without written agreement from The Council.

**Water Filters**

Resin beds in water filters can act as a reservoir for bacteria and if breakthrough occurs, the supply system downstream may be contaminated with Legionella and other bacteria.

For water filters, the regeneration period must be known and the service visits must be within a set period or as specified by the manufacturer (the usual period of change for this is 6 monthly)

If installed by The Council, the council will ensure that maintenance occurs. If for example these are installed by a school, then it is the responsibility of that school to ensure maintenance is carried out.

Recorded information must be filed in section 4 in the water hygiene log book for ongoing management.

**Stored Water Heaters:**

Generally, the risk is low but growth of Legionella bacteria can occur where the temperatures are constantly maintained at 20-45°C.

Water temperature checks on Combination Boilers, Point of Use (POU) and Instantaneous water heaters (no greater than 15 litres) are required to confirm the unit is delivering 50 ˚C (min) at an outlet.

Water temperature checks on Combination water heaters are required to confirm the unit is delivering 55 ˚C (min) at an outlet.

Calorifier (HWS including Plate Heat Exchanger & Buffer vessel) – The Flow should be 60 ˚C, with a return no less than 50 ˚C.

**Water Softeners**

Resin beds in softeners can act as a reservoir for bacteria and if breakthrough occurs, the supply system, downstream, may be contaminated with Legionella and other bacteria.

Hard/soft water checks should be carried out as required (normally at least weekly) and recorded. The maintenance contract details should be available, which must include a periodic service/clean. The brine tank should be kept in a clean condition and the softener back washed regularly (preferably one backwash cycle in a day).

**Sprinkler and Hose Reel Systems**

Generally, these systems are very low use and will contain highly stagnant water, which when used will be sprayed resulting in an aerosol.

Where practicable it is the Council's policy to remove hose reels and all associated pipework. Flushing of these systems should be carried as per the risk assessment recommendations.

NB: it is important that the hoses must be flushed into a bucket or such device to prevent formation of aerosols.

**Materials in contact with water**

Materials not approved by a Water Research Advisory Centre (WRAS) testing laboratory may provide nutrients to support microbiological growth.

Only WRAS approved water fittings and materials are to be used. Jointing materials such as natural rubber, hemp and linseed oil-based jointing compounds and fibre washers must not be used. Information can be obtained from the WRAS web site.

**Legionella Sampling**

The risk assessments carried out at all sites will determine if Legionella testing is required and if necessary will be carried out by the specialist contractor and will be done as per BS 7592:2008 that sets out the procedure to be followed when carrying out sampling from hot and cold water systems.

**Thermostatic Mixing Valves (TMV's)**

Young children and older people are most at risk from water scalds because their skin is thinner and therefore less tolerant to higher water temperatures than that of other age groups. As a result, they sustain scalds more quickly, at lower water temperatures and often with a greater depth of burn. The risk assessment will take this into account and make the necessary recommendations, one being the installation of a thermostatic control valve.

With regards to TMVs the council recommends that an annual service should be carried out. The specialist contractor or a competent person will open and clean, replace defective parts, descale the filters and carry out a fail-safe check.

The fail-safe test is carried out by isolating the cold water supply to the TMV and waiting for five seconds; if water is still flowing further checks will then be carried out e.g. the checking of the isolation valve, internal inspection of the TMV.

If there is no significant change to the set outlet temperature (±2°C or less change from the original settings) and the fail-safe shut off is functioning, then the valve is working correctly and no further service work is required.

NB Any checks or tests carried out on thermostatic control valves must be recorded in the site water hygiene log book.

**Sampling of Boosted/Cistern water for drinking purposes**

The water hygiene risk assessment will identify where cistern water is found to supply drinking water the following minimum sampling should be undertaken:

- Sample should be collected from the source cistern and a furthest outlet.
- The samples will be subject to the following analysis: TVC, Coliforms and E.Coli.
- Samples to be taken three monthly (or as indicated by the risk assessment)

All sampling tests will be recorded at the time taken and a certificate of analysis issued at filed in the water hygiene log book.

## *11. Risk Classification*

As per BS 8580:2010 Water quality, the risk assessments that are carried on behalf of The Council will take into account the corporate, site management and the overall building risk.

There may be areas highlighted in the risk assessment that are of a high risk, that if not addressed will increase the risk of legionnaire's disease.

A medium risk will be assigned to certain areas that indicate that improvements can be made by following best practice or industry standards.

A low risk classification will show that there is compliance with the current standards.

In each risk assessment survey report, the risk category is expressed for each of the systems assessed. Risk Category represents the degree of risk for that system. An explanation of how these categories have been determined is given for each of the systems assessed.

To achieve the risk rating the risk assessment will take in to account the following:

- Water temperatures between 20C and 45C? Are there areas where stagnant water occurs? Infrequently used outlets?
- Is debris in the system?
- Are there thermostatic mixer valves?
- Are there outlets that create an aerosol?
- Is there vulnerable people to infection present?
- Is there an effective management control system?

Following this, the risk rating will be assigned to the site.

## *12. Maintaining and Updating Records*

Records for all control measures implemented, will be stored in the water hygiene log book, which will be kept on site and contain the following:

- Risk assessment for the system
- Schematic diagrams of the system
- Records for control checks taken
- Disinfection record certificates
- Records of any remedial work carried out.

### Specialist Contractor

The Specialist Contractor will carry out disinfections, risk assessments, risk assessment reviews, sampling, monitoring, shower cleaning and other work where required. They will provide dates and results of inspections, tests and all associated works and procedures, which will be kept within the water hygiene site log book.

### Records

Consultants / Contractors shall ensure that the results of the risk assessments, schematics and disinfection certificates and any other record provided will be stored as PDF files. These will be stored within the KCC building Information system in addition to the contractors own

CAFM system, which should be available for inspection through a web portal to authorised staff.

The responsible person will ensure that all equipment used to carry out compliance testing is serviced and maintained to the standard required, records are kept and filed in the water hygiene log book. The manufacturer of the monitoring equipment used for will be able to supply details of calibration frequencies for the units.

Personnel who are responsible for the management of sites will ensure records of servicing and maintenance are kept for at least 5 years. Records will need to be available for audit purposes.

## *13. Specific Non Compliance Procedure*

**Water Temperature**

Non compliances are assessed and prioritised by the personnel who are responsible for the management of sites (with guidance from The Council if required), on a day to day basis and the responsible person should ensure action is taken accordingly.

**Cisterns and Water heaters**

Non compliances are assessed and prioritised by the Personnel who are responsible for the management of sites (with guidance from The Council if required), on a day to day basis and the responsible person should ensure action is taken accordingly.

The Specialist Contractor responsible for the production of risk assessments and reviews will produce a 'Priority Corrective Action Report' when it is considered that the site represents a significant risk to health and will inform the responsible person for the management of the site. The responsible person should ensure action is taken accordingly to eliminate this risk.

**Legionella Testing**

Legionella testing will be conducted as and when required or if indicated by the risk assessment. Action on the Legionella results will be considered in relation to the numbers of samples collected, the locations and the systems particulars at the time of the results. All sampling and any further actions will be managed by the Council's managing agents GEN2

**Action in the Event of a suspected Legionella Outbreak**

Legionnaires' disease is a notifiable disease. There is a duty upon registered medical practitioners to notify the proper officer of the relevant local authority of any suspected cases of Legionnaires' disease. The notification must be provided in writing within three days from the date of suspicion. Also, the operator of a diagnostic laboratory must notify the Health Protection Agency (HPA) when Legionella species are identified in a human sample.
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The Council would also notify the Health and Safety Executive (HSE) should an outbreak of Legionnaires disease occur.

In the event of a Legionella outbreak the Authority would put in place the following control measures within 24 hours or the earliest opportunity: -

- All processes that are capable of generating and disseminating airborne water droplets will be shut down until sampling procedures and remedial cleaning or other work has been carried out successfully
- Water samples will be taken before any emergency disinfection is undertaken.
- All staff health records will be checked to confirm whether or not there are any other undiagnosed cases of illness.
- Full co-operation will be provided to the local enforcement agencies who may undertake an investigation by providing details of pipe runs, operational records, statements from plant operatives / managers and statements from water treatment consultants or contractors

## *14. Supplementary Control Maintenance and Monitoring Procedure*

Although temperature is the traditional and most common approach to control, sometimes there can be technical difficulties in maintaining the required temperatures, particularly in older buildings with complex water systems. Where there are issues in managing temperatures, supplementary control methods including water treatment techniques, may be used.

The supplementary control method needs to take in to account all parameters including system design, age, size, and water chemistry, all of which can contribute to the complexity and difficulty of achieving adequate control. There is no single water treatment control regime that is effective in every case, and each control method has both benefits and limitations.

The Council will ensure water treatment programs are monitored by using a specialist contractor to demonstrate that the programs are working within the established guidelines and are effective in controlling Legionella bacteria in water systems. The frequency of monitoring and test procedures will be decided by the specialist contractor depending on the method selected.

## *15. Policy Procedure for Projects*

Plant or water systems should be designed and constructed to be safe and without risks to health when used at work. Such hazards maybe of a physical, chemical or microbial nature such as the risks associated with colonisation and growth of Legionella bacteria within the water system. The type of system installed depends on the size and configuration of the building and the needs of the occupants but the water systems should be designed, managed and maintained to comply with:

- the Construction (Design and Management) Regulations 2015 (CDM)
- the Building Regulations 2010 (and associated amendments)
- The Water Supply (Water Fittings) Regulations 1999 for systems provided with water from private sources – The Private Water Supplies Regulations 2009;
- BS EN 806 (Parts 1–5) *Specifications for installations inside buildings conveying water for human consumption*
- BS 8558 *Guide to the design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages*
- CIBSE Guide G *Public Health and Plumbing Engineering*.25

Any subsequent changes within buildings may result in modifications to water systems that incorporate features from different design styles and materials. Any modifications should

comply with the requirements and standards as identified above as if incorrectly designed, these can present a foreseeable risk of exposure to Legionella.

## 16. Commissioning

The aim of commissioning is to check the system is performing to design specifications, that there are no leaks and that the flow of the hot water system is balanced. From a microbiological perspective, the period between filling the system and bringing it into normal use is potentially the most hazardous. A risk assessment should be performed before commissioning, to identify and consider the potential for stagnation as this may lead to microbial growth where buildings are not to be fully occupied immediately or where systems are commissioned as occupation occurs e.g. infrequently or intermittently used buildings. All documentation and risk assessments are to be given to the responsible person and records held on site.

Before commissioning, the nature of the incoming water supply must be determined. If it is a public water supply, the water supplier will be able to provide details of the testing carried out in the local water supply zone in which the building is situated. If there is any doubt about the condition of the underground supply pipe connecting the building to the public supply main, the water supplier should be contacted so that they can carry out an appropriate investigation and advise if any action is required by either them, or the premises owner. If the building has a private water supply, the local authority should be contacted to carry out a private water supply risk assessment, if this has not been done already.

Any new water system will require, as a minimum, flushing and disinfection before being brought into use, and larger more complex systems may also require disinfection (as specified in BS EN 806 and BS 8558). This involves adding chlorine dioxide, drawing it throughout the system and leaving it for a specified time (the contact time) to take effect. It is important to monitor the levels of residual chlorine at selected outlets to ensure the minimum required concentration is maintained throughout the contact period.

The building commissioning process should consider the size and complexity of the water system. A new, correctly designed and installed water system should provide wholesome water at every outlet and where there are problems, the design or installation defect should be identified and rectified.

If water turnover is anticipated to be low initially, it may be advisable not to commission certain parts of the system, such as cold water storage tanks, until the building is ready for occupation. This will ensure flushing during low use periods will draw directly on the mains supply rather than intermediate storage. The manufacturer of any component to be bypassed should be consulted for any requirements, such as whether it needs to be filled or can remain empty until it is

NB The current risk assessment and schematic drawing must be updated to take into account any changes.

## 17. Provision of Information and Training

It is important that people who work in or carry out work on buildings that contain water systems or those who supervise employees or contractors are properly trained.

As per L8 guidance, those who are appointed to carry out the control measures and strategies should be suitable informed, instructed and trained. Competence is a product of sufficient training, experience, knowledge and other personal qualities.

The Council will ensure that staff involved in the management of water systems are provided with guidance and/or awareness training, during the course of their employment. The level of training will be determined by KKC according to the tasks the person is required to carry out in the normal course of their duties.

The Council currently provides Statutory Compliance Training which is free of charge and includes a session on the management of hot and cold water systems.

Training requirements will be reviewed and records of all training maintained in site log book.

**What Type of Training**

Kent County Council will provide the following training for the site personal responsible for carrying out monthly temperature monitoring, which will be carried out on site and be relevant to their onsite water systems:

Training for specific monitoring i.e. temperature testing, shower cleaning and flushing little used outlets, to be completed over three months, in three separate sessions. Training will be received by onsite personnel designated as a responsible person for carrying out monthly temperature monitoring by the specialist contractor.

- Session one - This includes the review of current risk assessment, current areas of risk and review any resultant works.

- Session two – This includes explanation of how to take and record temperatures, tank hygiene, shower cleaning and flushing little used outlets

- Session three – This includes the specialist contractor observing the responsible personnel conduct water hygiene duties to ensure best practice is met.

Personnel responsible for management of sites as well as internal KCC staff will be invited to attend the Council's free of charge Statutory Compliance Training in the Management of Hot & Cold Water Systems, that is held quarterly.

## *18. Management Reviews*

The outcome of defects, non-compliance and any other issues relating to water systems will be reviewed. A representative from The Council and the Consultant, Contractor, TFM Contractor and Specialist contractor will meet every six months. Actions undertaken will be recorded where necessary and minuted at the meeting.

## *19. Revision, Monitoring and Audit*

This policy will be kept under review by the Councils managing agent GEN2. It may also be amended when there is any significant change in legislation or best practice.

All generic assessments and plans of work produced by contractors must be reviewed at intervals of not more than two years and following changes in legislation or best practice.

Risk assessments shall be reviewed immediately following any changes to the water system onsite, remedial works relating to the water system, changes in legislation or reports of issues raised

All such assessments and plans of work must be checked and modified to ensure that they are job/project specific.

The personnel responsible on site will report any serious breaches to the responsible person, who will monitor compliance with the policy. All other cases of non-compliance will be dealt with by the Compliance Manager.

All employees who are involved in the management of premises or the management of building and maintenance works shall monitor compliance with this policy within their area of responsibility.

## *APPENDIX 1*

## Kent County Council

**KCC Infrastructure Commissioning Team**

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## GEN²

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Zone 2 Mid Kent
Area FM Manager – Melanie Cowley
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Area FM Manager – Dianne Woodcock
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Compliance Manager
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## Health and Safety

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## TFM Contractors

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## APPENDIX 2

# Kent County Council and Gen² Health and Safety Roles and Responsibilities

Overarching Governance

**Duty Holder**
**Kent County Council**

**Gen² Responsible Person**
**(Management)**

Duties:

Gen2 CEO takes the role of Responsible Person on behalf of the Company but will from time to time delegate this function to a competent Manager within the Senior Leadership Team of Gen2.

To report and manage all property related health & safety tasks on behalf of the Duty Holder.

Gen 2 to ensure that the TFM Contractor and any other Contractor working on the Estate directly undertakes and discharges its duties effectively.

d

**TFM Contractors Responsible Person**
**(Operations)**

Duties:

To undertake and deliver all Health & Safety tasks within scope of the TFM Contract.

To bring to Gen2 / KCC's attention all property related H&S tasks which require approval and deliver the tasks when spend authorisation is received.

To perform duties of the on-site Responsible Person where the role has been delegated to the TFM Contractor.

**Competent Help**

Duties:
To hold the necessary competence, technical qualifications, professional memberships and accreditations required for the relevant H&S function.

To deliver the H&S tasks in a competent manner, advising the Responsible Person / Duty Holder of the status of all H&S tasks, residual risks and required actions.

## *Appendix 3*

# Control Measures

There are many ways in which exposure to Legionella bacteria can be controlled and the complexity of controls will vary depending on the risks posed by any one system. The risk from exposure will normally be controlled by measures, which do not allow the proliferation of Legionella bacteria in the system and reduce exposure to water droplets and aerosol. Control measures will be as detailed in Approved Code of Practice (ACOP) L8 Fourth edition 2013 – The control of Legionella bacteria in water systems and HSG 274 (Parts 1-3)

## *Appendix 4*

# Risk of Scalding and Legionella Control Background

The Council is duty bound to provide water temperatures that do not exceed 43°C for showers and baths and where occupants are severely disabled. It is also recommended that hot water supplies to washbasins in Nurseries and Primary schools are limited to 43°C. This will be achieved by the installation of Thermostatic Mixer Valves (TMV).

The Health and Safety Executive (HSE) Health and Safety in Care Homes (HSG220) recommends that TMV's are fitted to reduce the water temperatures to below 43°C being discharged from taps where there is potential for whole body immersion (below 41°C for showers). It is particularly important that thermostatic mixing valves are maintained to the standard recommended by the manufacturer, as there have been fatal accidents where sites have not maintained valves adequately.

Overall there are numerous standards and guidelines produced for different environments and appliance that the Council are duty bound to apply to reduce water temperature, protecting the users and dealing with the Legionella risk.

**Advice on how to deal with this issue**

Even where TMV's are fitted supervision of bathing and suitable and sufficient risk assessment will need to be undertaken. The temperature of bathing water, etc. will need to be taken to ensure that the water is not too hot and does not present a scalding risk. As mentioned above, if the TMV has not been maintained correctly the chance of scalding is increased.

In elderly care facilities the risk assessments will need to take into account the vulnerability of all those who have access to the bathing facilities. The results of these assessments may be recorded in the individual service user care plans, which should include an assessment of their capabilities and should specify whether a service user is able to bath themselves unsupervised.

In establishments where TMV's are not fitted or other Legionella controls are not in place e.g. chemical dosing, the facility manager will need to conduct a risk assessment on the

bathing /washing activity. The risk assessment will need to examine the controls in place to prevent scalding, and issues like supervision for the vulnerable, temperatures of water, etc. will all need to be reviewed to ensure that they are appropriate. These measures will need to prevail and be monitored by management until the appropriate engineering controls are implemented e.g. fitting of TMV's.

The Facility Manager must not turn down the water storage temperature without first consulting with The Council's Legionella officers for advice. For those establishments with devolved budgets that do not wish to use the Council's Services, they will need to contact their Competent Person appointed for the control of Legionella on that site.

## *Appendix 5*

## Water Hygiene Contractors / TFM

The Council accepts that under the HSE Approved Code of Practice various tasks that need to be undertaken to minimise the risk can be contracted out to external specialists, therefore the council take all reasonable care to ensure the competence of the specialist providers to carry out the work on their behalf.

There are six critical areas that The Council and the responsible person should expect from prospective service providers.

Definitions

**Water Hygiene Contractors / TFM** are companies or individuals or their sub-contractors who are involved with providing:

- Advice
- Consultancy
- Operating, maintenance and management services
- The supply of equipment or chemicals

**Client**:

- The Council
- Owner or occupier of the building
- Person nominated to be the responsible person

**Staff**:

- Any person directly or indirectly employed in meeting the requirements of this policy.

**Allocation of responsibilities**:

The service provider will:

- Explain in detail the client's obligations under the Legionellosis legislation.
- Identify those services covered by the contract and those which should be provided in order to meet current obligations.
- Formalise an agreement detailing the respective responsibilities for each requirement

**Training and competence of personnel**

The service provider will:

- Supply details of the training that is provided to their personnel associated with the control of Legionellosis
- Indicate how personnel competence is assessed, training needs are established, and what measures are taken to ensure that personnel are kept up to date with best practice procedures.
- Assist the council to assess and meeting needs of their staff.

**Control measures:**

- Indicate how the design, monitoring and maintenance of appropriate programme of control measures are assessed.
- Show how they audit preventive and corrective actions

**Communication and management**:

The service provider will:

- Detail the management systems which operate if the control programme deviates from specifications e.g. positive Legionella result, and show how these are audited.
- Indicate how they would communicate with the council in the event of any necessary actions.
- Inform the council of any significant matters affecting the control of Legionellosis of which they have become aware, beyond the responsibilities of their contract.

**Record keeping:**

The service provider will:

- Indicate which records should be kept by both parties and where they will be kept
- Establish with the council who will be responsible for the maintenance of these records.

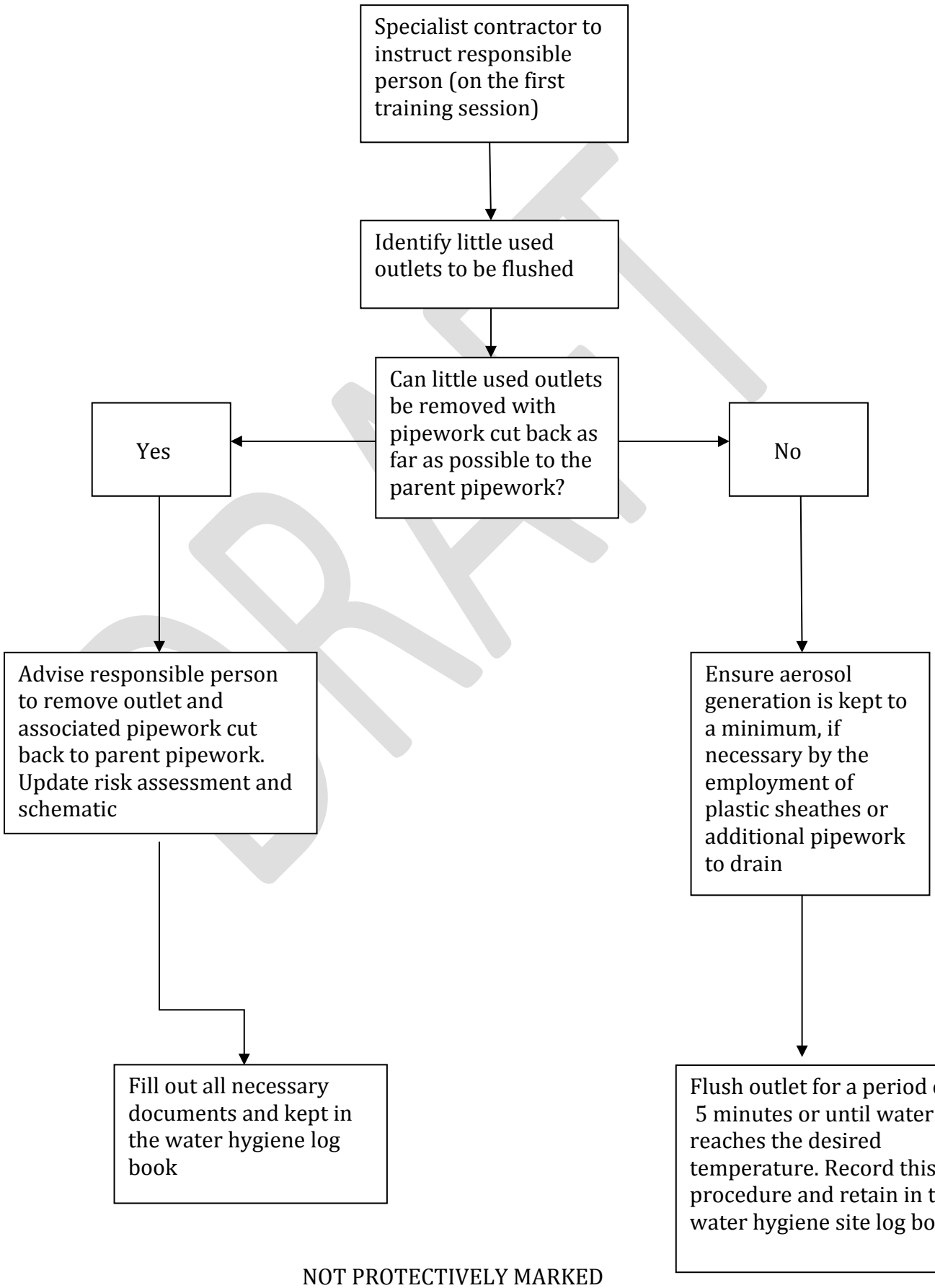
**Review:**

The service provider will:

- Recommend a programme that will allow both parties to review formally all aspects of the agreement covering system management and the control of Legionellosis.

## Appendix 6

# Procedure for Flushing Infrequently Used Outlets



## *Appendix 7*

# Legislation, Guidance and Standards

**Health and Safety at Work etc. Act 1974** places general duties on employers and self-employed persons to ensure, so far as is reasonably practicable, the health, safety and welfare of all their employees, and persons other than their employees who may be affected by any of their undertakings. Employers must also ensure that the premises, and any plant or substance therein, are safe and present no risks.

Relevant legislation, guidance and standards to manage Legionella are set out below.

**HSE Approved Code of Practice ACOP L8 (rev)** ~ The control of Legionella bacteria in water systems. Provides technical guidance on the management of water systems for Legionella control.

**BS 8580:2010 Water quality, Risk Assessments for Legionella control**

Guide to the design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages. Provides recommendations for risk assessment for Legionella control in water system. The British Standard is aimed at all duty holders including independent risk assessors, managing agents and facility managers. The BS 8580 is designed to accompany the Approved Code of Practice document.

**Control of Substances Hazardous to Health Regulations 2002 (as amended)**

Apply to substances that are hazardous to health, including asbestos, and place specific responsibilities on employers, self-employed persons and employees. The regulations require a suitable and sufficient" assessment to be made of the risks and measures necessary to control substances hazardous to health arising from work. Employers are also required to maintain the control measures to provide information, instruction and training in relation to the risks and control measures; to monitor exposure of the employees to the substances and (where relevant) organise a health surveillance programme.

**Water Supply (Water Fittings) Regulations 1999**

With guidance from Water Regulations Advisory Scheme (WRAS) – provides an explanation of the water fittings regulations. Part of the WRAS guidance is provided in the Water Fittings and Material Directory which has information on materials which have been tested microbiologically and chemically and have been found to be appropriate for use with water systems.

**Water Supply (Water Quality) Regulations 2000**

Provides water suppliers with statutory limits on water quality with information on sampling, testing and monitoring frequency.

**Private Water Supplies Regulations 2011**

Provides private water suppliers with statutory limits on water quality with information on sampling, testing and monitoring frequency.

## *Appendix 8*

# Written Scheme for Controlling the Risk of Exposure to Legionella Bacteria

This Written Scheme forms part of the Water Hygiene Policy of the Council and therefore applies to all premises and is issued in accordance with HSE Approved Code of Practice L8, and contains a summary of the requirements of the Council's' water management Policy.

### (a) Schematic Diagram

The schematic diagram for the particular premises is contained in the water services log Book, Located at the premises. A further copy is held by the Legionella Officers.

### (b) Description of the correct and safe operation of systems

The water services systems at The Council's premises operate under the following conditions of temperature:

- Cold Water storage cisterns: Below 20°c
- Cold water distribution <20°c
- Hot water storage: 60°c
- Hot water distribution: <60°c
- Hot water service return: 50°c or above
- Hot water to be heated before first draw-off takes place
- All outlets to be flushed unless used more frequently
- Hot water outlets with TMV set to 41°c + / - 2°as appropriate

### Other plant and systems

Other risk systems shall be maintained in accordance with the manufacturers' safe and correct operating standards and The Council' Specific Safe Operating Procedures (SOP).

### (c) Precautions to be taken

Water services, new and modified shall be in accordance with HSE ACoP L8, the British Standard 8558 Guide to the design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages and The Council Mechanical Technical Clauses appropriate to the contract.

Where people at risk of scalding are served by the hot water outlets, "fail-safe" thermostatically controlled mixing valves shall be used, positioned as close as possible to the hot water outlets, to reduce the hot water temperatures. Those people at risk of scalding include young children, the very old, and those with sensory loss.

The need for intermittently or infrequently used taps and appliances (particularly showers) will be identified by the risk assessment. If such taps and appliances are not necessary, the supplies shall be cut off close to the branch pipework to ensure that no blind end is formed.

Showers and outlets that cannot be removed shall be flushed in a manner that removes the possibility of creating an aerosol. With flexible showers hoses, the spray head should be lowered temporarily into a bucket and the water run to drain without creating an aerosol. With high level fixed shower heads, the method should be to place a food grade plastic bag over the head and attach using a plastic band, a corner of the bag is then cut to allow the water to be discharged safely into the shower tray/outlet without generating an aerosol.

## *Appendix 9*

## Procedures for Vacant Premises

The KCC requirement for the management of vacant properties is as follows:

1. The Agent/Contractor shall undertake an initial Site inspection visit to determine the condition of the property and to ensure that the requirements of the KCC insurance policies are complied with. Where there is a shortfall in meeting these requirements, KCC shall be notified immediately and proposed corrective measures submitted for consideration.

2. The Agent/Contractor shall ensure that:

3. All reasonable precautions are undertaken to ensure that all windows and doors are made secure. Access doors are to be checked, strengthened as necessary and properly secured or boarded up as appropriate with 18mm plywood using non – return screws or coach bolts. Mortice locks to BS3621 or close shackle padlocks with matching bar are to be used on all external doors as appropriate.

4. All wet systems are to be drained down and the supplies turned off at the main supply point. It is preferable that wherever possible that the water supplies are permanently disconnected where this is feasible. The only exception to this is where sprinkler systems are fitted, in which case the water supply is to be maintained and the premises heated to a minimum temperature of 50C at all times.

5. *A copy of the Legionella report to be located and the location of said register to be recorded. If appropriate, a copy of the register to remain in the building. A further copy of said register to be stored on the relevant premise file.*

6. Ensure that records are maintained and updated

## *Appendix 10*

**WATER HYGIENE MONITORING SCHEDULE – Table 1**

| Frequency | Action | Responsibility | |
|---|---|---|---|
| 1. Weekly | Flush little-used outlets to drain without release of aerosols for 5 minutes. Record. | TFM / Site Responsible Person | |
| 2. Monthly | Check water temperatures at Sentinel taps and record<br>Hot Water > 50°C after 1 minute<br>Hot Water < 43°C after 1 minute where TMV is fitted<br>Cold Water < 20°C after 2 minutes | TFM / Site Responsible Person, Specialist Contractor | |
| 3. Monthly | Check water temperatures at random selected outlets and record<br>Hot Water > 50°C after 1 minute<br>Hot Water < 43°C after 1 minute where TMV is fitted<br>Cold Water < 20°C after 2 minutes | TFM / Site Responsible Person, Specialist Contractor | |
| 4. Monthly | Check Calorifier temperatures.<br>Flow 60°C, Return > 50°C. Record. | TFM / Site Responsible Person, Specialist Contractor | |
| 5. Quarterly or as necessary | Dismantle, clean and de-scale shower heads and hoses. Record. | TFM / Site Responsible Person, Specialist Contractor | |
| 6. Six Monthly e.g. January & July | Measure incoming water temperature to cold water cisterns and water temperature remote from float valve. Record. | TFM / Site Responsible Person, Specialist Contractor | |
| 7. Annually | Open and inspect internal surfaces of HWS calorifiers for scale and sludge and clean or de-scale as necessary | Specialist Contractor | |
| 8. Annually | Inspect Cold Water Cisterns and carry out remedial work as necessary. Record work done and report outstanding defects. | Specialist Contractor | |
| 9. Annually | Physically inspect the hot and cold water systems and check accuracy of Schematic drawings. Note changes. Check for under used fittings and report recommendations | Specialist Contractor | |

**Remedial actions to be taken**

The expected results of the checks set out in Table 1 (Page 33), and the actions to be taken in the event of non-compliance, are listed below under the reference number for each check

1. No reporting appropriate

2. Temperature at Sentinel taps should be within the range and times stated. Record discrepancies and report to responsible person or use other reporting methods.

3. Temperature at random taps should be within the range and times stated. Record discrepancies and report to responsible person or use other reporting methods.

4. Temperatures at Calorifiers should be within the range stated. Record discrepancies and report to responsible person or use other reporting methods.

5. Responsible Person. If Shower heads and hoses cannot be cleaned or de-scaled effectively, call in Specialist Contractor

6. Temperatures at incoming mains and storage tanks should be below 20°C in all cases. Record discrepancies and report to responsible person or use other reporting methods.

7. Water from calorifier drains should be clean and free from visible debris. Record discrepancies and report to responsible person or use other reporting methods.

8. Calorifiers should be clean internally and free from sludge or heavy scaling. Record discrepancies and report to responsible person or use other reporting methods for further investigation and remedial action.

9. Report discrepancies between the Schematic drawing and the physical arrangements of Water services found on site to responsible person or use other reporting methods.