Suffolk County Council
Water Hygiene Management Plan

Co-ordinated by Vertas on behalf of Suffolk County Council

The report is produced in large print. On request this document will be fully or in part translated into other languages/ formats for use and comment.

Contents

1.0 Introduction

Suffolk County Council (SCC) as Landlord its function as Duty-holder under current Legislation and Approved Codes of Practice. This excludes Academy buildings with bespoke long-term leases where the duty holder function has been transferred to the Governing Body or Academy Trust.
The Duty-holder has a responsibility to protect employees and others who may be affected by its business operations against the risk from Legionella infection (Legionellosis) arising from plant, equipment, facilities, work, or work-related activities. SCC recognises that an effective Water Hygiene Management Plan (WHMP) needs to be in place to control the risk to staff and members of the public using the premises.

SCC will,

- manage the risk from Legionella in accordance with current Health and Safety Executive (HSE) legislation and guidance;
- where the risk from Legionella is assessed as unacceptable take all practicable measures to reduce this to a tolerable level;
- identify a Premises Responsible Person (PRP) in each SCC premises who has responsibilities for Legionella health and safety;
- detail in the Vertas Service Level Plan (SLP) or site specific mini framework contract the responsibilities for the management and monitoring of water hygiene;
- ensure co-operation across SCC services to implement the WHMP;
- ensure an adequate WHMP and Legionella Risk Assessment (LRA) is in place where SCC employees work in a building managed by another organisation. This will entail confirming with the Landlord that all equivalent measures detailed within this document are in place for SCC employees.

This document sets out Suffolk County Council's (SCC) procedures for managing water hygiene within its premises.

1.1 Relevant legislation and guidance

- Health & Safety at Work etc. Act 1974
  https://www.legislation.gov.uk/ukpga/1974/37/contents
- Management of Health & Safety at Work Regulations 1999 SI 1999 No. 3242
  https://www.legislation.gov.uk/uksi/1999/3242/contents/made
- Control of Substances Hazardous to Health (COSHH) Regulations 2002 SI 2002 No. 2677
  https://www.legislation.gov.uk/uksi/2002/2677/contents/made
- Approved Code of Practice (ACoP) - L8 – Legionnaire's Disease: The control of legionella bacteria in water systems https://www.hse.gov.uk/pubns/books/l8.htm
- HSG274 Legionnaires Disease Technical Guidance Parts 1, 2 and 3
  https://www.hse.gov.uk/pubns/books/hsg274.htm
- Reporting of Injuries Diseases and Dangerous Occurrences Regulations (RIDDOR) 2013
  https://www.legislation.gov.uk/uksi/2013/1471/contents/made

- BS 8580-1:2010 Water quality. Risk assessments for Legionella control. Code of practice
- Drinking Water Inspectorate (DWI) Guidance on Implementing the Water Supply (Water Quality) Regulations in England and Wales http://www.dwi.gov.uk/stakeholders/guidance-and-codes-of-practice/wswq/index.html
- Water Act 2003. http://www.opsi.gov.uk/acts/acts2003/20030037.htm
- The Water Act 2014 https://www.legislation.gov.uk/ukpga/2014/21/pdfs/ukpga_20140021_en.pdf
- The Water Act (Consequential Amendments) Order 2017 SI 2017 No. 506 https://www.legislation.gov.uk/uksi/2017/506/contents/made
- Water Industry Act 1991 (as amended). http://www.opsi.gov.uk/acts/acts1991/Ukpga_19910056_en_1.htm

England

- Water Supply (Water Fittings) Regulations 1999, SI 1999 No 1148. http://www.opsi.gov.uk/si/si1999/19991148.htm
  Provision of wholesome water:
- Water Supply (Water Quality) Regulations 2000. SI 2000 No 3184. http://www.opsi.gov.uk/si/si2000/20003184.htm
- Water Supply (Water Quality) Regulations 2010. SI 2010 No 991. http://www.legislation.gov.uk/uksi/2010/991/contents/made
- The Water Supply (Water Quality) Regulations 2016 SI 2016 No. 614 https://www.legislation.gov.uk/uksi/2016/614/contents/made
- The Water Supply (Water Quality) (Amendment) Regulations 2018 SI 2018 No. 706 https://www.legislation.gov.uk/uksi/2018/706/regulation/1/made
- Private Water Supplies (England) Regulations 2016 SI 2016 No. 618 https://www.legislation.gov.uk/uksi/2016/618/contents/made
- The Private Water Supplies (Amendment) Regulations 2018 SI 2018 No. 707 https://www.legislation.gov.uk/uksi/2018/707/contents/made
- BS 8558:2015 Guide to the design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages. (Complementary guidance to BS EN 806

2.0 Water Hygiene Management Plan(WHMP)

The Water Hygiene Management Plan is designed to control and minimise the exposure to Legionella and other waterborne bacteria and the related health risks to anyone working, visiting, or living within SCC premises.

The plan includes details of how SCC will:

- Assess the foreseeable risk from Legionella;
- manage the risk from Legionella bacteria;
- identify Responsible Person/s;
- provide recommendations and guidance on control measures required to maintain hot and cold-water systems;

- maintain appropriate records;
- periodically review the WHMP adapting it to meet any changing needs;
- execute emergency procedures when Legionella is found or suspected.

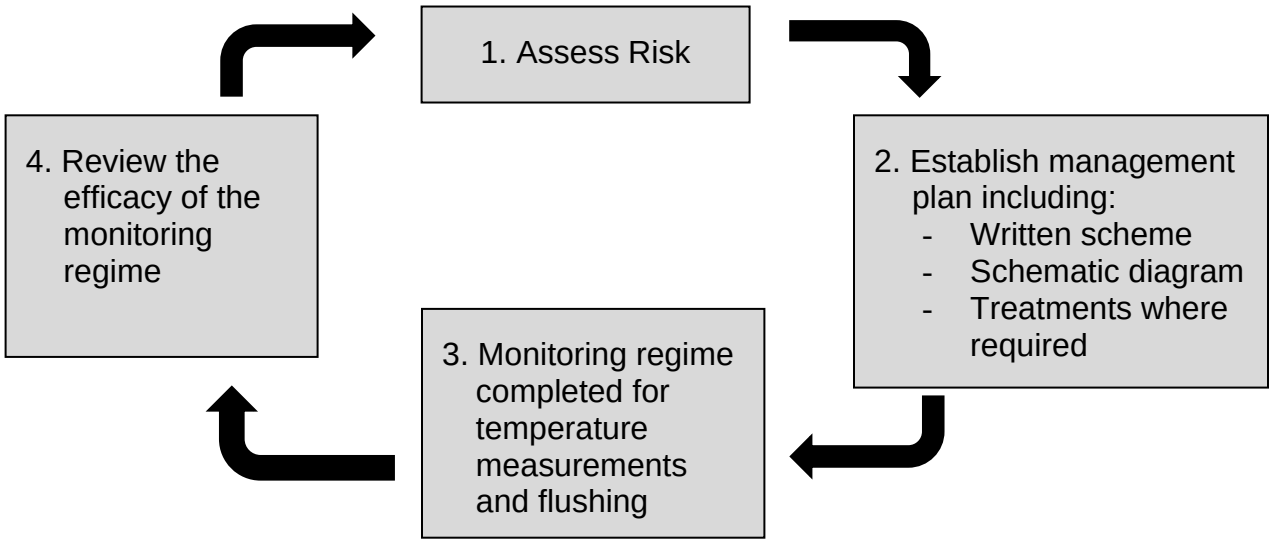
The management plan applies to hot and cold-water services only.

For swimming pools and whirlpool/spa-baths Directorates must:

- ensure suppliers and contractors are suitably vetted and competent to maintain these facilities
- adequate risk assessments and procedures are in place for these installations

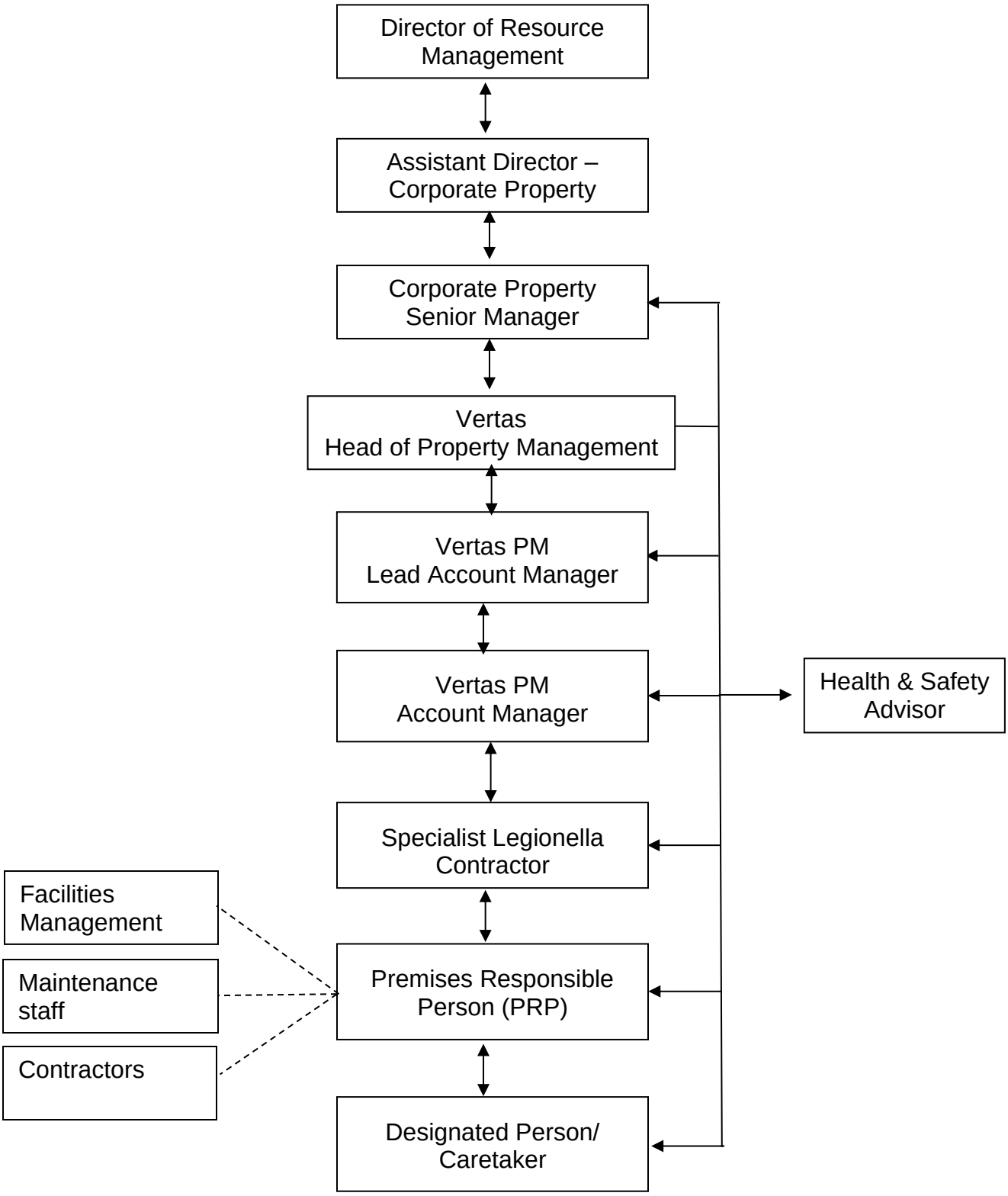
The control of Legionella in other risk systems is described in HSE Guidance HSG274 Part 3 that accompanies HSE ACoP L8. This includes for instance whirlpool, spa baths, emergency showers and water softeners.

2.1 Flow chart of management plan process



2.2 Water Hygiene Management Plan Implementation Chart

Organisational roles within SCC for the implementation of the Water Hygiene Management Plan are represented as follows:



3.0 Responsibilities

3.1 Chief Executive(SCC)

Ensuring that the WHMP for the Control of Legionella is implemented and managed effectively.

3.2 Directors(SCC)

- Facilitate health and safety policy development and implementation, including the management of water hygiene within SCC premises in their directorate.
- Ensure adequate resources are provided and allocated to implement the WHMP.
- Make sure that the responsibilities for management and monitoring of water hygiene are recorded in the SLPs for specific premises.

3.3 Assistant Directors(SCC)

- Ensure that the risk from Legionella is assessed and managed.
- Assign Premises Responsible Persons (PRP) for each property.
- Make sure the PRP has the necessary skills, knowledge, experience, training and resources to undertake duties assigned to them to manage Legionella risks.

3.4 Assistant Director for Resource Management, Corporate Property (SCC CPM)

- Ensure compliance with statutory legislation supported by annual audit
- Ensure the WHMP and LRA forming the Written Scheme is in place for each location.
- Ensure arrangements are in place including that LRA carried out by suitably trained and competent persons or organisations in sufficient detail to identify and assess the risk from Legionella of work activities and all on-site water sources.
- Ensure the necessary controls and precautionary measures e.g. temperature monitoring, flushing and descaling are implemented.
- Ensure the risk from Legionella is suitably controlled and meets approved standards during building and maintenance projects.
- Ensure records are maintained and accessible to personnel such as contractors and Vertas PM Account Managers (AMs).
- Ensure the agreed split of responsibility for managing Legionella between the Directorate, Corporate Property Management and Vertas Property Management is detailed and documented.

3.5 Premises Responsible Person (PRP)

- Ensure the requirements of the WHMP and LRA are met in their building.
- Ensure that actions detailed in the LRA are carried out within the required timescales and the LRA is annotated accordingly for the purposes of maintaining an up to date record.
- Ensuring so far as is reasonably practicable that employees, customers, visitors and others are not exposed to Legionella bacteria from their premises which could pose a risk to their health and safety.
- Ensuring monitoring is being undertaken as agreed in the premises SLP;
- Ensuring Designated Persons(DP) are adequately trained and have the necessary skills, knowledge and experience to perform the tasks to meet their responsibilities.

- Making sure delegation arrangements are in place for any absence of the PRP or DPs.
- Maintaining all records within the Water Hygiene Management Log Book held on site and accessible to all.
- Notifying their Directorate and the Vertas PM AM of any work undertaken on the water services by using the SCC/ Vertas Landlord Consent Form process.

3.6 Designated Person(s)(DP)

e.g. Caretakers/ Handypersons/ Nominated Staff/ Facilities Managers.

- Responsible for carrying out proactive monitoring of water systems under the direction and supervision of the PRP, Vertas PM AM and specialist contractors.
- All checks will be recorded and kept up to date in the Water Hygiene Management Log Book

.

Checks will include:

- **Flushing** water systems in premises weekly for their prescribed period or in accordance with the weekly flushing regime (see Appendix 4);
- **Disinfecting** and **de-scaling** showerheads as required;
- **Water temperature checks** – monthly
    - **Taps, sentinel and in rotation**
    - **Thermostatic Mixer Valves (TMVs)**
    - **Calorifier/ HWS Cylinder flow and returns**
    - **Point Of Use (POU) Electric water heaters**

  These are identified in the schematic diagram in the Legionella Risk Assessment. Thermostatic Mixer Valves will be checked in a rotation.
  See Appendices - Guidance Notes.

3.7 Vertas Property Management (PM) Account Managers(AM)

- Assist the PRP/ DP where required.
- Liaise with specialist contractors.
- LRAs will be directly delivered to site and explained to the PRP.
- Following an LRA, any changes/ alterations in water services which may impact on the safe management of Legionella will be identified with the PRP.
- Ensure regular monitoring is being completed at premises by the PRP through an annual compliance check.
- Notify the PRP and other relevant staff of any issues that arise through regular inspections.

3.8 Directorate Health & Safety Advisor(SCC)

Providing advice including statutory duties to their directorate in support of the WHMP Plan on controlling and reducing risks associated with Legionella bacteria.

3.9 Specialist Contractors

The appointed Legionella specialist maintenance contractor (in line with the Legionella Contractors Association (LCA)) is responsible for:

- Completing LRAs and Legionella building surveys to BS8580 and HSE HSG274;
- Inspecting all parts of the systems for damage or contamination and notifying the Vertas PM AM of remedial actions where required;

- Disinfecting systems and ensuring compliance with treatment regimens;
- Recording all inspections, assessments and maintenance information in and updating the Water Hygiene Management Log Book accordingly;
- Advising Vertas PM AMs of the outcome of inspections, areas of concern and recommendations to enable the implementation of preventative work to maintain appropriate standards for control of Legionella.
- Arranging at cost as directed on site refresher training to the PRP/ DPs where required.
- The frequency of site visits and inspections is detailed at Appendix 1

4.0 Legionella Risk Assessment (LRA)

- Carried out for all water systems in SCC premises
- LRAs will be carried out by a specialist contractor in accordance with provisions of HSE CoSHH ACoP L8/ HSG 274 to BS8580 and guidance from the LCA.
- All LRAs will consider whether Legionella bacteria is present in the water systems to allow Legionellosis to occur i.e.
    - whether the water is stagnant – if it is circulating and constantly moving with no redundant areas it is likely that the bacteria will be flushed away;
    - whether there are sources of nutrition for Legionella in the system e.g. sediment, sludge, scale, biofilms etc;
    - whether the cold water can be kept cold (below 20°C) and the hot water hot (above 50°C) at all times within the system;
      (water temperatures in the system between 20°C and 50°C favours bacterial growth);
    - whether there is a potential for aerosol formation to allow transmission of infection e.g. showers, fast running taps;
    - the presence of people likely to be exposed and whether any of them are more vulnerable and susceptible to infection.
- Identifies potential hazards
- Identifies control measures to be put in place to reduce the risks to tolerable levels.
- Annual review of LRA by PRP supported by the Vertas PM AM.
    - all actions identified have been completed;
    - all regular monitoring checks have taken place;
    - confirmation that all records are current and maintained in the Water Hygiene Management(WHM) Log Book;
    - ensure that the specialist contractor has carried out the required maintenance and monitoring checks, these are present in the WHM Log Book and that all resulting actions have been carried out;
    - liaison with the Vertas AM regarding any outstanding issues.
- Biennial review by SCC/ Vertas specialist water hygiene contractor
- **The LRA will require review if,**
    - changes occur to the water system or its use;
    - changes occur to the use of building;
    - new information about risks or control measures becomes available;
    - monitoring indicates that control measures are no longer effective;
    - changes occur in key personnel with responsibility for water hygiene management;

- any cases of Legionellosis occur associated with the system.

  Note: In any of the above circumstances the Vertas PM AM **must** be notified to ensure that the LRA records on K2 are updated and current.
- Copy maintained on site in the Water Hygiene Management Log Book
- Copy maintained on the SCC Facilities and Asset Management System K2 by Vertas PM

5.0 Written Scheme

- COSHH Regulations require protection of employees from the foreseeable risk of Legionella.
- Where it is not practicable to avoid exposure to Legionella present in water systems HSE ACoP L8 requires that a Written Scheme is in place to ddemonstrate how the risks are to be controlled and managed.
- The Written Scheme will include:
  - current plan/ layout of the entire plant and water system (a schematic diagram is adequate) (LRA);
  - a description of how to operate the system safely (WHMP);
  - precautions required including physical treatments e.g. flushing the system, or chemical treatments for descaling and disinfection (WHMP);
  - monitoring required and the frequency of such checks to ensure the effectiveness of the scheme e.g. temperature monitoring, bacteriological testing (WHMP);
  - detail remedial actions to be taken in the event that the scheme is not effective (WHMP).
- The Written Scheme must demonstrate risk control and management and for SCC premises comprises all relevant information contained within the Water Hygiene Management Log Book,
  - The WHMP
  - The LRA
  - The monitoring records

As indicated by HSE guidance indicates the scheme shall include;

- the physical treatment programme such as the use of temperature control for hot and cold-water systems (LRA);
- the chemical treatment programme, including a description of the manufacturer's data on effectiveness, the concentrations and contact time required (LRA);
- health and safety information for storage, handling, use and disposal of chemicals;
- remedial measures to take in case the control limits are exceeded, including lines of communication (WHMP);
- cleaning and disinfection procedures (WHMP/ LRA);
- emergency procedures (WHMP).

Consideration **must** be given to ensure the safety of customer groups and members of the public when cleaning and disinfection is to take place, to ensure they do not bathe in or drink the water during disinfection or cleaning regimes.
It should also include full details of the correct operation, monitoring and maintenance of the water system installation.

7.0 Schematic Diagrams

Must**,**

- be simple accurate representations of the water system layout including parts out of use
- be easy for anyone to interpret the layout without specialised knowledge or experience;
- be current;
- **show the layout of the plant and equipment including positions of sentinel taps/ outlets**
- include servicing and control valves within the water system e.g. isolation valves
- include components relevant to legionella risk e.g. outlets, strainers, filters, parts out of use

These will usually be provided by the Specialist Contractor undertaking the Legionella Risk Assessment. When engaged the Specialist Contractor must be instructed to supply information detailed on the schematic diagram supplied with the LRA as detailed above.

Note: Photographs can be used in support where required.

8.0 Water Hygiene Log Book

The Water Hygiene Log book **must** be maintained on site at all times and be available to anyone that needs access to the following information;

- Site Information including written scheme and details of its implementation and those responsible for its implementation
- The current WHMP
- Current LRA including significant findings
- Schematic diagram of the water system;
- Signing-in sheet/ monitoring/ sampling records by Contractor;
- Monitoring records by DP;
- Details of any work completed on the water system;
- Training records of those involved in managing, monitoring and controlling the risk from legionella.

All records shall be maintained for a minimum of 5 years and in accordance with HSE ACoP L8.

9.0 Scheme for Control of Legionella

HSE ACoP L8 Indicates that risk can normally be controlled by measures preventing the growth of Legionella bacteria and preventing human exposure to water droplets and aerosols including,

- avoiding water temperatures of between 20°C and 45°C;
- avoiding water stagnation and growth of bio-films;
- avoiding nutrient sources e.g. dead vermin, birds, wood etc. which can fall into open water tanks;

- selecting plumbing materials/ plant complying with Water Regulations Advisory Scheme (WRAS), designed to avoid harbouring or nurturing bacteria
  Note: in the UK the Water Fittings and Materials Directory lists fittings, materials, and appliances approved for use on the UK Water Supply System by the WRAS. Those approved are tested against BS 6920;
- keeping systems clean and clear of sediments, scale etc.
- controlling the release of water spray during use;
- using suitable and safe water treatment programmes;
- taking action to ensure water systems are used and maintained correctly;
- maintaining effective monitoring and maintenance of records.

10.0 Temperature regime control of Legionella

General approach used by SCC

- Hot water is stored at 60ºC
- Distributed so it reaches a temperature of 50ºC within one minute at outlets.
- Cold water supply will be below 20ºC.
- Distributed so the temperature is below 20ºC in 2 minutes at outlets

10.1 Temperature control of hot water for vulnerable persons

- Risk of scalding can be lowered by reducing hot water temperatures at outlets to lower than 50ºC.
- This is essential where there are vulnerable people including children, those with learning difficulties, sensory loss, and the elderly.
- Thermostatic Mixing Valves (TMV's) are designed for this purpose and it is recommended that they are fitted on all baths, showers, and taps.
- Where fitted outlet water temperatures can be controlled and adjusted usually between 38 and 44ºC depending upon local assessment of risk.
- PRPs should refer to the manufacturers operating instructions and advice from Vertas PM to ensure the devices are installed correctly, working safely, and serviced in accordance with manufacturers guidelines in accordance with the SLP.
- TMVs must be suitable for the water conditions of the area. See HSE http://www.hse.gov.uk/pubns/hsis6.pdf
- TMVs should be located within 2m of the outlet
- Servicing by specialist contractors must include inspection, cleaning and disinfection of any strainers or filters where fitted
- The building regulations require where a scalding risk is assessed as low (e.g. where healthy users immerse their whole body), that type 2 TMVs which can be overridden by the users should be installed
- Where a scalding risk is considered significant (e.g. where users are very young, very elderly, infirm or significantly mentally or physically disabled or those with sensory loss) then type 3 TMVs that are pre-set and fail-safe should be provided. These are required at healthcare premises.
- These must be checked by the specialist contractor to make sure they are fail-safe if the cold-water supply pressure is interrupted during scheduled maintenance.

- **For compliance with ACoP L8, where TMVs are fitted monitoring of water temperatures will require checking the cold and hot water inlet pipes to the TMV <u>NOT</u> the tap water outlet temperature.**

AM 11.0 Other Treatment and Control programmes

- Chlorine Dioxide;
- Biocide treatments;
- Copper/ Silver Ionisation regime;
- Ozone treatment;
- Ultra Violet (UV) light treatment.

The above measures can only be used within SCC premises

- under the direct advice and supervision of specialist Contractors
- following notification of the Vertas PM AM and PRP and the implementation of a safe system of work
- Biocide treatments are not permitted where water is to be used for domestic purposes

12.0 Infrequently used services/ "dead-legs"

- Regular use of **<u>all</u>** outlets reduces the potential for Legionella growth.
- To avoid possible build-up of Legionella bacteria and contamination of the water system consideration should be given to,
  - removing infrequently used showers, taps, water fountains:
  - cutting back redundant pipework to a common supply where possible to avoid "dead-legs" (an example is shown in the photograph)

13.0 General Monitoring Guidance (see Appendices)

General monitoring is required to allow for the early detection of problems in maintaining the control regime. Routine water service checks include:

- **Weekly** - **Flushing** water systems in premises weekly for their prescribed period or in accordance with the weekly flushing regime **(Appendix 4);**
- **Monthly** - **Water temperature checks water supply taps:**
  The temperature checks will be made from the first and last taps (**Sentinel taps**) on the system. These are identified in the schematic diagram.

Cold Water: Water temperature should be below 20ºC after 2 minutes of running the water.
Hot Water: Water temperature should be at least 50ºC within 1 minute of running the water.

- **Monthly - Water temperature checks calorifiers/ hot water cylinders:**
  Hot Water Flow: Water temperature should be at least 60ºC
  Hot Water Return: Water temperature should be at least 50ºC
- **3 Monthly(minimum) - Disinfecting and de-scaling showerheads**.
- **Annual - Water temperature checks water supply taps:**
  The temperature checks will be made on a rotation of all supply taps on the system. These are identified in the schematic diagram.
  Cold Water: Water temperature should be below 20ºC after 2 minutes of running the water.
  Hot Water: Water temperature should be at least 50ºC within 1 minute of running the water.
- Cleanliness and use.

Note: All information must be recorded on the monitoring sheets provided (see Appendices) and maintained in the Water Hygiene Log Book

14.0 Temperature Monitoring: Cold Water Services

14.1 Taps, other outlets:

- DP
- Monthly
- Sentinel points (see Water Hygiene Management Log book for Legionella Risk Assessment and schematic diagram).
- Check tap is in clean working condition without lime-scale; where lime-scale is present this will require removal.
- Run the tap at a moderate flow to reduce production of spray;
- Record the temperature of the flowing water with an immersion probe connected to a thermometer after the tap has been running for 2 minutes;
- Temperatures **above 20°C** must be reported to the PRP immediately who will contact the Vertas PM AM to enable investigation (see below)
- Record the readings **using the** Monthly Hot and Cold-Water Temperature Recording Log **(Appendix 6).** Completed forms must be filed in the correct section of the Water Hygiene Log Book and be available inspection as required.

  Note: Cold water supply temperatures above 20°C can occur during prolonged periods of hot weather. The PRP/ Vertas PM AM should be notified to enable investigation to ascertain the reasons and possible mitigation. Regular water flushing and insulation of storage tanks can assist in keeping the supply temperatures lower.

14.2 Water softeners

- DP

- Water temperatures inlet/ outlet below **20°C**
- clean/ disinfect brine tanks where fitted in accordance with manufacturers recommendations
- disinfect resin bed where fitted in accordance with manufacturers recommendations
- Temperatures **above 20°C** must be reported to the PRP immediately who will contact the Vertas PM AM to enable investigation.
- Record the readings on Monthly Hot and Cold-Water Temperature Recording Log **(Appendix 6)**. Completed forms must be filed in the correct section of the Water Hygiene Log Book and be available inspection as required.

14.3 Drinking Water Fountains

- DP
- Monthly at sentinel points
- Check fountain nozzle is in clean working condition without limescale;
- Run the fountain at a moderate flow to minimise production of spray;
- Record temperature after the fountain has been running for 2 minutes;
- Temperatures **above 20°C** must be reported immediately to the PRP who will contact the Vertas PM AM to enable investigation.
- Record the readings on Monthly Hot and Cold-Water Temperature Recording Log **(Appendix 6)**. Completed forms must be filed in the correct section of the Water Hygiene Log Book and be available inspection as required.

15.0 Temperature Monitoring: Hot Water Services

15.1 Taps/ other outlets

- DP
- Monthly at sentinel points
- Check tap is in clean working condition i.e. no scale;
- Run the tap at a moderate flow to minimize spray;
- Record temperature after the tap has been running for 1 minute;
- Temperatures **below 50°C** must be reported as soon as possible to the to the PRP who will contact the Vertas PM AM to enable investigation.
- Record the readings on Monthly Hot and Cold-Water Temperature Recording Log **(Appendix 6)**. Completed forms must be filed in the correct section of the Water Hygiene Log Book and be available inspection as required.

15.2 Calorifiers on circulating hot water systems

- DP
- Monthly at flow and return points
- Record flow pipe temperature this must be at least **60°C**;
- Record return pipe temperature this must be at least **50°C;**
- Temperatures outside of these values must be reported as soon as possible to the to the PRP who will contact the Vertas PM AM to enable investigation.

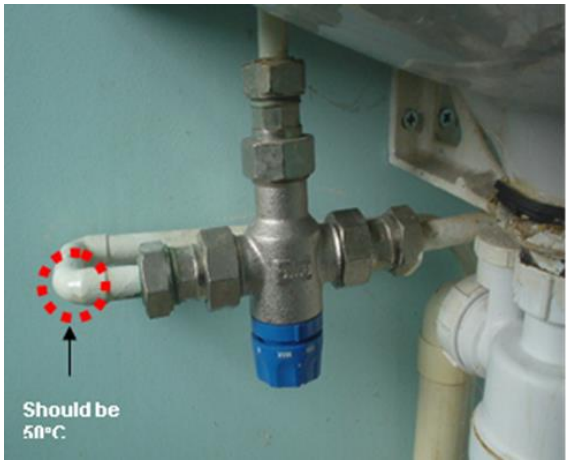
- Record the readings on Monthly Hot and Cold-Water Temperature Recording Log **(Appendix 6)**. Completed forms must be filed in the correct section of the Water Hygiene Log Book and be available inspection as required.

15.3 Point of Use(POU) Electric Water heaters:

- DP
- Monthly
- Check tap is in clean working condition i.e. no scale;
- Run the tap at a moderate flow to minimize spray;
- Record temperature when running the tap ideally after several seconds. Be aware of that some smaller capacity electric heaters will fail to produce instantaneous hot water so running for more than a minute can exhaust the hot water capacity;
- Temperatures **below 50°C** must be reported as soon as possible to the to the PRP who will contact the Vertas PM AM to enable investigation.
- Record the readings on Monthly Hot and Cold-Water Temperature Recording Log **(Appendix 6)**. Completed forms must be filed in the correct section of the Water Hygiene Log Book and be available inspection as required.

16.0 Temperature Measurement: Thermostatic Mixer Valves (TMVs)

- DP
- Inlet hot water temperatures to TMVs must be at least **50°C** within a minute of running the water.
- Inlet cold water temperatures to TMVs must be below **20°C** within a minute of running the water.
- Outlets fitted with TMV’s should be monitored on a sentinel basis (nearest and furthest outlet).
- All outlets should be monitored for hot and cold-water inlet temperatures on a rotation over the course of the year.
- The temperature should be taken with an appropriate surface/ clamp thermometer from the hot and cold-water inlet pipes see picture below
- Record the readings on Monthly Hot and Cold-Water Temperature Recording Log **(Appendix 6)**. Completed forms must be filed in the correct section of the Water Hygiene Log Book and be available inspection as required.



17.0 Flushing Water Services

- DP
- Weekly.
  Note: if more frequent flushing is required this will be detailed in the Legionella Risk Assessment (e.g. Residential Homes)
- The Legionella Risk Assessment will identify infrequently used services i.e. **used less than weekly including taps, toilets, outside taps, showers, water fountains etc.** which **must** be flushed weekly
- The schematic diagram present as part of the Legionella Risk Assessment should indicate all outlets and sentinel points to allow systematic flushing at all locations on the system.
- It is very important that the protection of staff and members of the public passing by are considered during this activity. Exposure to aerosols as a result of flushing activities **must** be avoided.
- Any taps which are not working, **must** be reported, and repaired without delay
- Services will be operated and flushed for several minutes in accordance with the WHMP/ Written scheme
- The flushing procedure **must** be maintained. Lapses can result in a critical increase in Legionella bacteria at an outlet.
- In the event the premises are closed for more than a week any stagnant water will need to be flushed before the system is used. This is very important in educational establishments where they are closed during vacation periods.
- Stagnant water tanks need to be completely flushed through (necessity can be indicated by the water temperature/ general cleanliness)
- Flushing in these cases must be carried out in a way that minimises the production of aerosols or water droplets this can include,
  - Running a hose/open pipe work from the outlet to a suitable drain;
  - Running fire-hoses to drain at a distance from occupied buildings;
  - Closing windows and air conditioning intakes where aerosols are created outdoors.
- Record the readings on The Weekly Flushing Log **(Appendix 7)**. Completed forms must be filed in the correct section of the Water Hygiene Log Book and be available inspection as required.

18.0 Cleaning and Disinfection

Treatment of water services will only occur if

1. routine inspection shows it to be necessary e.g. showers
2. following any significant alteration to a system
3. during or following an outbreak or suspected outbreak of Legionellosis.

This is accomplished by,

1. **Chemical disinfectant**s: e.g. by chlorination used for complete systems. Chemicals need to remain in contact for a specified period to be effective. This activity must be carried out by the contractors competent trained personnel. Water quality checks are undertaken before returning the system to use.
2. **Thermal disinfection:** raising the water temperature to a level at which legionella cannot survive. This is accompanied by slow flushing to maintain high temperatures throughout the system. Must be carried out by the contractors competent trained personnel to avoid scalding risk to others during the process and requires water temperature/ quality checks before returning the system to use.

Note:

- The specialist contractor will carry out a risk assessment for the task and develop a safe system of work
- Careful selection of the method to be used will be based upon the types of premises and the people using the services.
- Advice should be sought from your Vertas PM AM and Directorate Health and Safety Advisor.
- Methods of cleaning and flushing are detailed in BS8558

19.0 Sampling and Testing for Legionella

1. SCC premises receive six monthly and annual legionella prevention visits from a specialist contractor during which water samples are taken.

2. Water samples are taken from hot water systems where a calorifier is fitted. Samples are taken from the base of the calorifier.

3. Water samples are taken from cold water systems where a cold-water tank is present.

4. Analysis of water samples for Legionella
   - will be carried out in United Kingdom Accreditation Service (UKAS) accredited laboratories with the current ISO standard methods for the detection and enumeration of Legionella included within the scope of accreditation.
   - These laboratories should also take part in a water microbiology proficiency testing scheme such as that run by Public Health England (PHE) or an equivalent scheme accredited to ISO 17043.
   - Alternative quantitative testing methods can be used as long as they have been validated using ISO 17994 and meet the required sensitivity and specificity. A competent microbiologist will interpret the results.

5. The specialist contractor will inform Vertas PM and Directorate Health and Safety Advisor where the results of water sample analyses are above recommended quality criteria to enable remedial action to be taken.

6. Additional or alternative samples will only be taken where the specialist contractor suspects the quality of water is unsatisfactory or at the direction of the Vertas PM AM.

7. Where additional samples are required the HSE ACoP L8 **only** recommends routine sampling and analysis as a control measure in specific circumstances and lists the following requirements for particular systems where routine testing should be undertaken.
   - Where water distribution temperatures are reduced and biocides are used to control bacteria growth – monthly sampling;
   - Where biocide or temperature levels are out of control – weekly sampling until system is back in control;
   - Where a Legionella outbreak is suspected;
   - Hospital wards.

8. Sampling should be carried out in accordance with BS 7592 *Sampling for Legionella organisms in water and related materials.* The complexity of the system will determine the number of samples taken but should never be less than 2 samples of cold water and 2 samples of hot water.

19.1 Action following Water Sampling for Legionella

The specialist contractor will receive the results from the laboratory and report the results accordingly using the following guidance extracted from HSE (Health & Safety Executive) HSG274 Part 2 Table 2.2

Legionella bacteria (cfu/l)	**Recommended actions**
>100 cfu/l and up to 1000	Either: • 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 or • 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.
cfu/ l = colony forming unit/ litre = a measurement of the number of viable bacteria counted/ quantified that have been grown on a culture plate in accordance with documented methods.	

SEE APPENDIX 5
Actions to be taken based upon the outcome of sampling and analysis.

20.0 Actions in the event of an outbreak/ suspected outbreak of Legionellosis

1. Legionellosis is a notifiable disease.

2. Immediately contact the Vertas PM PA or the Support Desk and the Directorate Health and Safety Advisor.

3. Liaise with your SCC Directorate/Schools Health and Safety Advisor.

4. The SCC Directorate Health and Safety Advisor will inform the authorities LA Environmental Health/ HSE/ PHE.

5. All documentation and information including maintenance records etc. must always be available on site in the Water Hygiene Log Book.

6. All actions, meetings, notes etc. relating to the outbreak should be retained and kept in the Water Hygiene Log Book.

21.0 Maintenance of Records

SCC Corporate Property maintains a premises asset management database known as **K2** for all properties. This contains records of the current Legionella Risk Assessments.

The specialist contractor holds the following information on their web based systems (Vertas PM AMs have access to this information):

- Copies of current LRAs
- Copies of work sheets,
- Evidence of sample records,
- Cold water storage tank surveys.

It is the responsibility of the PRP to ensure that appropriate records are recorded in the Water Hygiene Log Book as detailed in Section 8.0.

All records shall be maintained for a minimum of 5 years and in accordance with HSE ACoP L8. Following this period all records shall be kept in accordance with SCC's archiving policy.

22.0 Building Refurbishment and Modification to Water Services/ Systems:

Any remodelling, installation or modifications will require

- Review, update, and inclusion on the full LRA, Written Scheme, Schematic diagram and Water Hygiene Log Book for the premises
- This work will need to be carried out by the specialist contractor

Note: The sentinel taps/ points are likely to change

23.0 Temporary Buildings:

Short duration installation < 30 days

- Full LRA and commissioning information required on installation
- Written Scheme and Schematic diagram required to service the temporary building and any water supply
- Temporary Water Hygiene Log Book required

Installation >30 days where connected to the main building water system

- Review, update, and inclusion on the full LRA, Written Scheme, Schematic diagram and Water Hygiene Log Book for the premises

Note: The sentinel taps/ points are likely to change

24.0 Non-Operational Premises (NOPs):

Short term decampment:

- Appointment of PRP by SCC Corporate Landlord
- Temporary Modified LRA/ Written Scheme to determine flushing requirements should be created by the specialist contractor
- Weekly flushing regime, flushing for extended period (+2 minutes) should be carried out by the chosen contractor
- Recommissioning to include disinfection of complete system

Longer term "moth-balling"

- Appointment of PRP by SCC Corporate Landlord
- Modified LRA, Written Scheme and Schematic diagram (if required) should be created by the specialist contractor
- Disconnection of services to avoid flushing requirement
- Decommissioning/ drain down of system should be carried out by the specialist contractor
- Recommissioning to include maintenance/ cleaning disinfection and testing (including water sampling and analysis) of complete system should be carried out by the specialist contractor

25.0 Building Changes:

The following circumstances will require consideration of Water Hygiene Management and LRA:

- Commissioning of New Buildings for use by SCC – requires LRA, Written Scheme and Schematic diagram on handover
- Where SCC employees are based in rented or leased premises not owned by SCC e.g. NHS premises, identification of Landlord or lease agreement responsibilities for the provision of LRA and a Written Scheme, prior to occupation.
- Where SCC buildings are leased to others, records will be kept in accordance with HSE ACoP L8. Responsibilities for the provision of the LRA and the Written Scheme will be determined by the lease.

26.0 Information and Training

- The specialist water hygiene contractor will provide basic refresher training on an annual basis or when changes to personnel occur to the DPs to allow them to fulfill their duties.
- The Water Hygiene (Legionella monitoring) Training Record **must** be used (see Appendix 9).
- Basic Legionella awareness is included in Premises Management Training provided by Vertas PM and e-learning modules are available from Suffolk County Council.
- PRPs must ensure all relevant staff undertake this training.

22.0 Glossary

Aerosol	A suspension in a gaseous medium of solid particles, liquid particle or solid and liquid particles have negligible falling velocity.
Algae	A small, usually aquatic plant which requires light to grow, often found on exposed areas of cooling towers.
Air-conditioning	A form of air treatment whereby temperature humidity and air cleanliness are all controlled within limits determined by the requirements of the air-conditioned enclosure.
Bacteria	(Singular Bacterium) A microscopic, unicellular (or more rarely multicellular) organism.
Biocide	A substance which kills micro-organisms.
Biofilm	A community of bacteria and other microorganisms embedded in a protective layer with entrained debris, attached to a surface.
Calorifier	An apparatus used for the transfer of heat to water in a vessel the source of heat being contained within a pipe or coil immersed in the water.
Chlorine	An element used in disinfection.
Chlorine Dioxide	A substance used for disinfection
Cold Water Services (CWS)	Installation of plant pipes and fitting in which cold water is stored, distributed and subsequently discharged.

Cooling Tower	An apparatus through which water is discharged against an air stream; in doing so part of the water is evaporated to saturate the air and this cools the water. The cooler water is usually pumped to a heat exchanger to be reheated and recycled through the tower.
Dead-leg	Pipes leading to a fitting through which water only pass when there is a draw off from the fitting.
Disinfection	The reduction of the number of microorganisms to safe levels by either chemical or non-chemical means (e.g. biocides, heat, or radiation).
Distribution circuit	pipework which distributes water from hot or cold-water plant to one or more fittings/appliances.
Domestic water.	hot and cold water intended for drinking, washing, cooking, food preparation or other domestic purposes.
Hot water service	installation of plant, pipes and fittings in which water is heated, distributed, and subsequently discharged (not including cold water feed tank or cistern
Legionnaires Disease	A serious form of pneumonia caused by legionella bacteria.
Legionella	Type of aerobic bacterium, which is found predominantly in warm water environments. (Singular of Legionellae).
Legionellosis	Any illness caused by exposure to legionella.
Pontiac Fever	A disease caused by species of legionella, an upper respiratory illness less severe than Legionnaires Disease.
Micro-organism	An organism of microscopic size including bacteria, fungi and viruses.
Nutrients	A food source for micro-organisms.
Plankton	Free floating micro-organisms in an aquatic system.
ppm	Parts per millions; a measure of dissolved substances given as the number of parts there are in a million parts of solvent. It is numerically equivalent to milligrams per litre mg/l with respect to water.
POU Water heaters	Point of use electric type units
Risk Assessment	Identifying the hazards from water sources, services and work activities in the premises that can increase the potential for Legionellosis and determining any necessary control measures.
Sentinel Taps-can be found on Schematic Diagram	For hot water services – the first and last taps on the re-circulating system. For cold water systems (or non-re-circulating hot water systems) the nearest and furthest taps from the storage tank. The choice of sentinel taps may also include taps, which are considered to represent a particular risk.
Sludge	A general term for soft mud-like deposits found on heat transfer surfaces or other important sections of a cooling system. Also found at the base of calorifiers and cold-water storage tanks.
Slime	A mucus-like exudate which covers a surface produced by some micro-organisms.

Stagnation	The condition where water ceases to flow and is therefore liable to microbiological growth.
Thermal Disinfection	Heat treatment to disinfect a system.
Thermostatic Mixing Valve (TMV)	Mixing valve in which the water temperature at the outlet is pre-selected and controlled automatically by the valve independently of the supply service water temperature.
Total Viable Counts (TVC)	The total number of cultivable bacteria (per volume or area) in a given sample (does not include legionella).

Appendices:

Appendix 1	Guidance Note 1	Inspection frequencies and responsibilities for Hot and Cold Water Services
Appendix 2	Guidance Note 2	Monthly Hot & Cold Water Temperature Recording
Appendix 3	Guidance Note 3	Weekly Flushing Regime
Appendix 4	Guidance Note 4	Temperature Monitoring Regime
Appendix 5	Guidance Note 5	Emergency procedures if Legionella is detected in water system
Appendix 6	Monthly Hot and Cold Water Temperature Recording Log	
Appendix 7	Weekly Flushing Log	
Appendix 8	Shower Head Descaling Log	
Appendix 9	Water Hygiene (Legionella monitoring) Training Record	

Guidance Note 1
Summary Inspection frequencies and responsibilities for Hot and Cold Water Services

All the checks **must** be recorded in the Water Hygiene Log Book

Service	Task	Frequency	Responsible
Hot Water Services	Organise water samples to be taken from calorifiers	**6 - Monthly**	**Contractor**
	Visual/sound check on internal surfaces of calorifiers for scale and sludge where possible. Otherwise assessment by sampling water where drain available.	**Annually**	**Contractor**
	Check temperature in flow and return pipework at calorifiers	**Monthly**	**Designated Persons**
	Check water temperature up to one minute to see if it has reached 50°C at the sentinel taps	**Monthly**	**Designated Persons**
Cold Water Services	Visually inspect cold-water storage tanks. Organise remedial work where necessary.	**Annually**	**Contractor**
	Organise water samples to be taken from tanks. Tank water temperature check remote from ball valve Mains water supply temperature at ball valve. Note: maximum temperatures recorded by fixed max./ min. thermometers where fitted	**6 - Monthly**	**Contractor**
	Water temperature check below 20°C after running the water for up to two minutes in sentinel taps (furthest point or last on the system).	**Monthly**	**Designated Persons**
	Flush Sentinel taps and annual rotation of all taps	**Weekly**	**Designated Persons**
Shower head	Dismantle, disinfect and de-scale shower heads and hoses	**3-Monthly minimum**	**Designated Persons**
Little used outlets	**Flush** through and purge to drain, or purge to drain immediately before use, without release of aerosols	**Weekly**	**Designated Persons**
TMV	TMVs are maintained by specialist contractor	**6 - Monthly**	**Contractor**
Cooling Towers	* No cooling towers are present at Suffolk County Council premises		
Spa Baths	* Please see separate guidance for spa baths		
Swimming Pools	* Please see separate guidance for swimming pools		
Watering Systems	e.g. greenhouses, etc. * Refer to individual risk assessment and guidance specific to the premises.		

Guidance Note 2
Monthly Hot and Cold Water Temperature Recording

1. Carried out by the **Designated person (DP)**

2. **Records/ Results** recorded on the Monthly Hot & Cold Water Temperature Recording Log (Appendix 6)

3. **Taps,** Temperature measurements shall be taken from the first and last taps (**Sentinel taps**) on the system and any others required by the Legionella Risk Assessment and identified on the schematic diagram. Including:
   - Any tap or water outlet not in regular use (this could be an external tap, toilet, shower, disused room or basin).
   - The nearest and furthest taps from the storage tank for the COLD water services;
   - The first and last taps on the HOT water service.

   Temperature values:
   - **Cold Water:** Water temperature should be below 20ºC after 2 minutes of running the water
   - **Hot Water:** Water temperature should be at least 50ºC within 1 minute of running the water

4. **TMVs (Thermostatic Mixing Valves) (Taps should be marked as mixer)**
   - Where fitted, temperatures of running water will not exceed 43°C.
   - For the purposes of the legionella requirements the temperature of the water in the supply pipe will need to be recorded - best achieved by using a clamp type thermometer attached to an unpainted section of the pipework
   - Hot water temperature shall be at least 50ºC

5. **Calorifiers (circulating hot-water systems)**
   - **Flow** outlet pipe at least **60ºC**
   - System **return** pipe at least **50ºC**

6. **Hot water heaters (Point of Use (POU) – Electric/ standalone)**
   - **Hot Water:** Water temperature should be at least **50ºC within 1 minute** of running the water

7. **ALL irregularities or unacceptable results above 20ºC for cold water and below 50ºC for hot water shall be recorded and reported to the Vertas PM AM immediately to make sure that any potential problems are investigated.**

Guidance Note 3
Weekly Flushing Regime

1. Carried out by the **Designated Person DP** (this can be a delegated by the PRP)

2. **Record** all operations on the Weekly Flushing Log (Appendix 7) and maintain records in the Water Hygiene Log Book

3. **Weekly flushing regime** must include all infrequently (i.e. less than every few days) used water services (hot or cold)

4. Operate all sentinel outlets to ensure the water tank where present is fully flushed working backwards from the furthest sentinel tap. Record on the Weekly Flushing Log.

5. When carrying out the flushing exercise it is recommended that
   - **care must be taken to avoid creating an aerosol of water droplets caused by operating taps at a high flowrate too quickly**
   - **this procedure should not be carried out by anyone in the higher risk groups such as those with an impaired immune system**
   - **methods using plastic bags, hoses to waste, cloths are utilised to reduce the potential for aerosol generation**

6. **Taps**
   - Run **HOT** water at a slow flow rate initially and eventually increase to full flow at the end of the 1 minute period. Commence at the furthest sentinel tap away from the **HOT** water service/tank identified in the Schematic diagram (LRA).
   - Run **COLD** water at a slow flow rate initially and eventually increase to full flow at the end of the 2 minute period. Start at the sentinel tap furthest away from the **COLD** water mains-tank identified in the Schematic diagram (LRA).
   - In each case a pipe can be attached to the tap to direct the flow of water to the drain to avoid the generation of an aerosol.

7. **Showers**
   Shower heads should be lowered into the shower tray (or bath) as near to the drain as possible. If this is not possible a bucket, plastic bag with a hole in it or towel can be used to prevent aerosol generation.
   - Turning the **HOT** water service on for at least 2 minutes at a slow flow rate initially to eventually increasing to full flow at the end of the period
   - Turning the **COLD** water service on for at least 2 minutes at a slow flow rate initially to eventually increasing to full flow at the end of the period

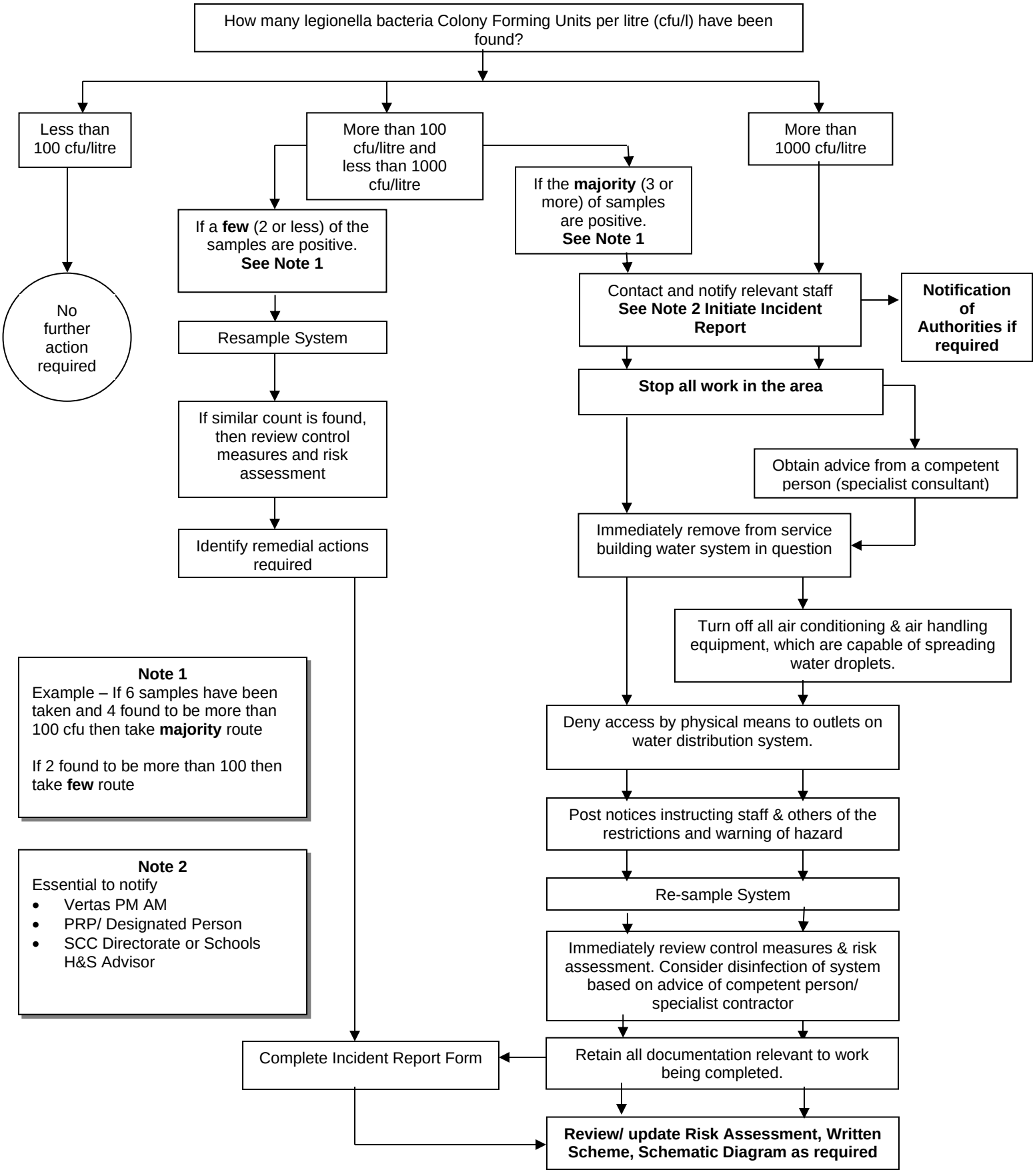
Guidance Note 4
Temperature Monitoring Regime
Checks to be carried out by the Designated Person. This regime should be kept in the Water Hygiene Log Book. All monitoring shall be recorded on the appropriate forms.

Temperature Monitoring Regime				
Frequency	**Check**	**Cold Water**	**Hot Water**	**Notes**
Monthly (Form Appendix 6)	Sentinel Taps (see glossary)	The water temperature should be below 20ºC after running water for 2 minutes	Water temperature at least 50ºC within 1 minute of running the water	Ensures supply and return temperatures on each loop are unchanged, i.e. the loop is functioning as required.
	TMVs where fitted. Flow pipe water temperatures to TMV (see glossary)	The water temperature should be below 20ºC after running water for 2 minutes	Water supply temperature to TMV should be at least 50ºC within 1 minute of running the water	Use a surface/clamp type thermometer to take the temperature from hot and cold water pipes leading to the TMV. Thickness of paint on the pipe can affect the temperature readings. This may need to be removed to the metal of the pipe to get a more accurate reading.
	POU Water Heater		Water temperature should be at least 50ºC within 1 minute of operation	
	Calorifier (see glossary) water leaving (flow) and returning (return)		Outgoing water at least 60ºC and return at least 50ºC	If fitted, use the thermometer pocket at the top of the calorifier and make sure measurement points are provided on the return for accuracy
Six Monthly	Incoming water inlet (at least once in winter and once in summer)	Water temperature should be below 20ºC		If it is safe to do so, where fitted. The most convenient place to do this is at the ball valve outlet to the cold-water storage tank
Annually	Representative number of taps on a rotational basis	Water temperature should be below 20ºC after running water for 2 minutes	Water temperature should be at least 50ºC within 1 minute of operation	Checks that the whole system is functioning as required for legionella control.

Appendix 5

Guidance Note 5

Emergency Procedure if Legionella is detected in water system



Appendix 6

Monthly Hot and Cold Water Temperature Recording Log

Premises Address:		
Name of Designated Person		
	Please ensure that this record is completed on a **monthly** basis and retained in the Premises Log Book at all times	

Tap/ Pipe/ TMV (Tap number, pipe location and/or description)	**Hot Water** Temperature should be at least **50°C** within **1** minute of running the water		**Cold Water** Temperature should be below **20°C** after **2** minutes of running the water		**Calorifier Hot Water FLOW** at least **60°C RETURN** at least **50°C**		**Comments**	**Date**	**Signed (Initials)**
	Temp	Run Time	Temp	Run Time	Flow Temp	Return Temp			

Report any irregularities/ unacceptable temperatures immediately to your Vertas PM AM

See Appendix 2 for further information on the Monthly Hot and Cold Water Temperature Recording

Appendix 7

Weekly Flushing Log

Premises Address:	
Designated(DP) Person: Name/ Position	

Please ensure that this record is completed on a weekly basis and retained in the Water Hygiene Log Book at all times

Tap/Outlet requiring flushing (Tap number, pipe location and/or description)	Time required to flush system/tap	Comments	Date	Signed (Initials)

See Appendix 3 for further information on the Weekly Flushing Regime

Appendix 8

Shower Head Descaling Log

Premises Address:	
Designated Person (DP) Name/ Position	

Please ensure that this record is completed on a monthly basis and retained in the Water Hygiene Log Book at all times

Shower Location/ Identifier	Comments	Date	Signed (Initials)

See Appendix 1 for further information on the Maintenance Regime

Appendix 9

Water Hygiene (Legionella monitoring) Training Record

Premises Address:	Company:	
	Trainer Name:	
	Date of Training:	
I hereby confirm my receipt of basic Legionella Monitoring Training. Following a hand over meeting with .....I understand my obligations with respect to Legionella control and the requirements of the current HSE Approved Code of Practice L8 (The control of Legionella bacteria in water systems). I further understand my responsibilities to the implementation of the Written Scheme and the monitoring requirements.		
Signed (Designated Person)		Date
Print Name		
Signed (Trainer)		Date
Training topics covered: (please tick when a topic is completed) o What is Legionella? o Why is it harmful? o Factors affecting growth (temperature, stagnation etc.) o The law and HSE ACoP (L8) o Copy of the logbook recording sheets & guide to monitoring o Updating the lines of communication/ asset list o The monitoring requirements (and who does what) o Monthly sentinel tap and calorifier monitoring/ recording (and why only these outlets) o Weekly flushing method and recording o Physical site temperatures testing using the thermometers issued to site o Safe water system flushing after periods of stagnation		
Signed (Designated Person)		Date
Print Name		
Signed (Trainer)		Date
I am aware the Designated Person for the premises has undertaken the training above:		
Signed (Premises Responsible Person)		Date
Print Name		
A copy of this training record must be kept in the Water Hygiene Log Book		