

THE STATE HOSPITALS BOARD FOR SCOTLAND

WATER SAFETY MANAGEMENT POLICY AND PROCEDURES

Policy Reference Number	OHS09	Issue: 6.2
Lead Author	Head of Estates & Facilities	
Contributing Authors	Estates Officer	
	Authorising Engineer Water	
Advisory Group	Infection Control Committee	
Approval Group	Senior Management Team (SMT)	
Implementation Date	27 February 2020	
Review Date	31 March 2024 (28/11/23 - review date extension approved by Policy Approval Group)	
Accountable Executive Director	Director of Security, Estates and Resilience	

The date for review detailed on the front of all State Hospital policies/ procedures/ guidance does not mean that the document becomes invalid from this date. The review date is advisory and the organisation reserves the right to review a policy/ procedure/ guidance at any time due to organisational/legal changes.

Staff are advised to always check that they are using the correct version of any policy/ procedure/ guidance rather than referring to locally held copies.

The most up to date version of all State Hospital policies/ procedures/ guidance can be found on the intranet: <http://intranet.tsh.scot.nhs.uk/Policies/Policy%20Docs/Forms/Category%20View.aspx>

REVIEW SUMMARY SHEET

No changes required to policy (evidence base checked)

☐

Changes required to policy (evidence base checked)

☒

Summary of changes within policy:

September 2022

Corrections made to the water temperature format.

CONTENTS

1.	WATER SAFETY MANAGEMENT POLICY STATEMENT	5
2.	BACKGROUND.....	6
3.	GENERAL	6
3.1	Legionella	6
3.2	Persons at Risk	6
3.3	Habitat.....	6
3.4	Infection.....	7
3.5	Growth.....	7
3.6	Risk Situations.....	7
3.7	Pseudomonas	7
4.	RESPONSIBILITIES AND DUTIES	8
4.1	Management Responsibility.....	8
4.1.1	Duty Holder.....	8
4.1.2	Designated Person	8
4.1.3	Responsible Person Water	8
4.1.4	Authorising Engineer	9
4.1.5	Advanced Practitioner Infection Control (APIC) and Consultant Microbiologist	9
4.1.6	Water Safety Group	9
4.1.7	Deputy Responsible Person (Water).....	9
4.1.8	Authorised Person	10
4.1.9	Competent Person.....	10
4.1.10	Installer.....	10
4.1.11	Contractor.....	10
4.1.12	Contract Supervising Officer	11
4.1.13	Departmental	11
4.2	Assessment of Risk	11
4.3	Risk Control Measures and Written Scheme	12
4.4	Measurement, Monitoring and Review / Audit Arrangements.....	12
4.4.1	Internal Audit Procedure:	13
4.4.2	External Audit Procedure:	13
4.4.3	Management Review:	13
4.5	Training and Competence	13
4.6	Reporting Structures.....	14
4.7	Hazard.....	14
4.8	Management Procedures	14
4.9	Design and Commissioning	14
4.10	Legionella Sampling	14
4.11	Actions to be taken if Legionella is found in the water system.....	14
4.12	Outbreak	16
5.	COMMUNICATION	16
6.	RECORDS	16
7.	REVIEW ARRANGEMENTS	16

8.	POLICY REVIEW AND FORMAT	17
	CLINICAL STAFF & DEPARTMENT PROCEDURES	19
1.	GENERAL	19
1.1	Responsible Nurse / Clinical Staff / Departmental Managers / Line Managers are responsible for:	19
1.2	All staff and workers engaged in healthcare provision and support services are responsible for:	19
2.	LEGIONELLA	20
2.1	Situation	20
2.2	Background and Assessment	20
2.3	Requirements	20
2.4	Low Use Outlets (e.g. any outlet that is not used for 3 days in a row)	20
	ESTATES PROCEDURES	22
1.	REPORTING PROCEDURE AND SUPERVISION	22
1.1	Managers are responsible for ensuring the duties identified in this policy for areas under their responsibility are carried out.....	22
2.	MAINTENANCE AND OPERATION	22
2.1	Temporary Closure of Wards / Departments and Plant.....	22
2.2	Infrequently Used Taps WCs or Shower Heads (Responsible Nurse / Person in Ward or Department)	23
2.3	Domestic Hot Water Calorifiers.....	23
2.4	Domestic Hot Water Distribution	23
2.5	Cold Water Systems.....	24
2.6	Shower Heads	24
2.7	Air Conditioning Plant (Evaporative Tower)	24
2.8	Legionella Testing	24
3.	DESIGN AND COMMISSIONING.....	25
4.	SAFETY PROCEDURES	25
5.	RECORDS	25

1. WATER SAFETY MANAGEMENT POLICY STATEMENT

The policy of The State Hospitals Board for Scotland is to provide and maintain safe and healthy working conditions, equipment and systems of work for all patients, staff and visitors, and to provide such resources, information, training and supervision as needed for this purpose.

The State Hospitals Board for Scotland aims to do all that is reasonably practicable in the management and control of *Legionella*, *Pseudomonas* and other similar harmful micro organisms.

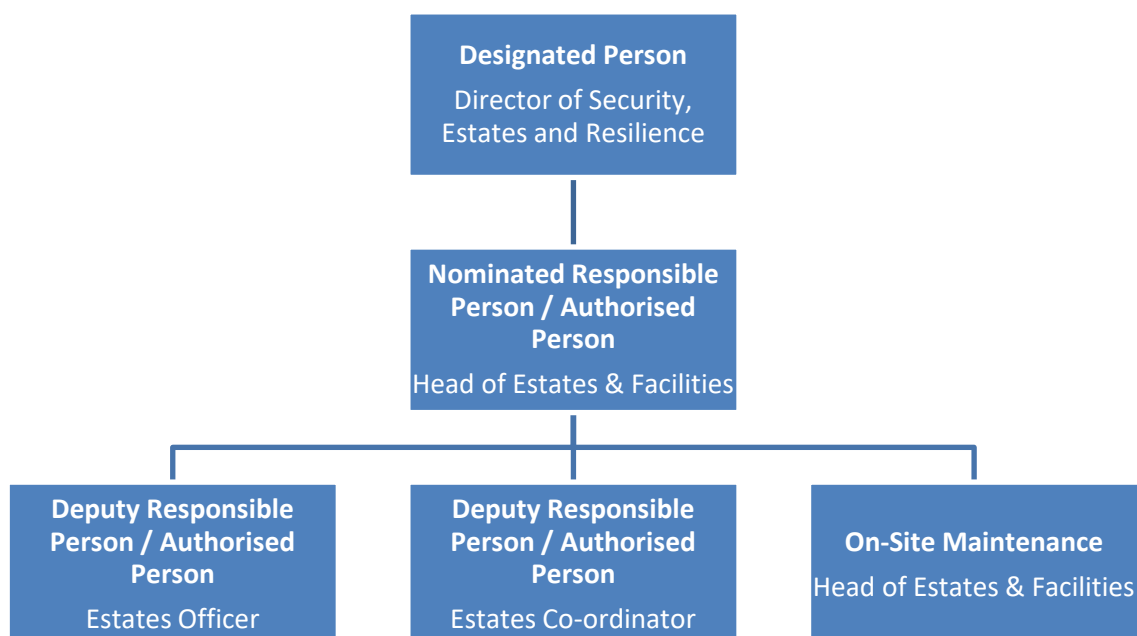
The State Hospitals Board for Scotland recognises its duty as a public sector healthcare organisation to identify, assess and control the risk of potential exposure to *Legionella*, *Pseudomonas* and other similar harmful micro organisms from all water systems used to maintain hygiene in the delivery of healthcare and all the associated work activities.

The State Hospitals Board for Scotland has developed, implemented and maintains a scheme with assessment, control measures, maintenance arrangements and monitoring with an annual performance review of arrangements set in place, to ensure the provision of a safe environment for all who may use, interface with and support healthcare delivery (to include all staff, patients and members of the public).

Legionellosis is a notifiable disease in Scotland. The finding of a case, whether healthcare associated or not, requires notification to the Consultant in Public Health Medicine (CPHM). The finding of a case associated with The State Hospitals Board for Scotland premises will generate an outbreak control team chaired by the CPHM as a matter of course.

The policy of The State Hospitals Board for Scotland is to meet the requirements of the relevant guidance, and to comply with these procedures so far as is reasonably practicable.

The Head of Estates & Facilities has been appointed as the Nominated Responsible Person Water for The State Hospitals Board for Scotland. Management structure as follows:



This policy is formally accepted by The State Hospitals Board for Scotland.

The State Hospitals Board for Scotland will do all that is reasonably practicable to comply with its requirements, and will make the necessary resources available.

2. BACKGROUND

The State Hospitals Board for Scotland will minimise the of risk from potential exposure to *Legionella*, *Pseudomonas* and other similar harmful bacteria by managing and controlling the conditions, including clinical practice and cleaning procedures, to avoid the proliferation of the bacteria, through 'suitable and sufficient assessment, design, maintenance, management and monitoring both the system control scheme and by the effective implementation of remedial works so far as is reasonably practicable'.

The policy has been developed to complement the Scottish Health Technical Memorandum (SHTM) 04-01 and the Approved Code of Practice and Guidance, Legionnaire's disease, The control of legionella bacteria in water systems (ACoP) L8. CEL 08 (2013) is intended to minimise the risk of *Pseudomonas aeruginosa* infection from water.

Water services throughout The State Hospitals Board for Scotland have Risk Assessments and Written Schemes with Water Safety Procedures for Monitoring, Maintenance and Alterations for Water Systems, developed and implemented to supplement this policy and to provide an effective management tool to reduce the risks posed by *Legionella*, *Pseudomonas* and other similar harmful micro organisms.

3. GENERAL

3.1 Legionella

The bacteria occurs naturally in all sources of water. They can enter man-made systems such as building hot and cold water systems or water services, and if conditions are right, they can multiply to levels where they can potentially present a significant health risk. If there is a way of creating and dispersing aerosols it may be possible for the tiny water droplets in the aerosols containing legionella bacteria, to be inhaled. If the individual is susceptible, infection may develop. Aerosols, such as from a shower or a spray tap, are a particular risk, because the very small water droplets can remain airborne for some time and if breathed in, can penetrate deeply into the lung.

3.2 Persons at Risk

- 3.2.1** Persons most at risk include smokers, people with alcohol dependency, patients with cancer, diabetes, chronic respiratory, kidney and similar diseases, also those undergoing treatment involving immunosuppression.
- 3.2.2** Whilst anyone can contract the disease, those in the 40 to 70 year age group appear to be most at risk and men are more likely to be affected than women.

3.3 Habitat

The Legionella bacterium (*Legionella pneumophila*) is present in natural water, soil and can also survive in many water systems in buildings. The include water systems: -

- 3.3.1** Drinks Vending Machines
- 3.3.2** Portable Cooling Units / Humidifiers
- 3.3.3** Air Conditioning / Air Handling Units
- 3.3.4** Water features
- 3.3.5** Cold Water Systems
- 3.3.6** Domestic Hot Water Systems including shower heads
- 3.3.7** Dental Unit Water Lines (DUWL's)

3.4 Infection

- 3.4.1 Infection is caused by breathing in contaminated aerosols into the lungs. These aerosols are formed in water sprays, produced by equipment such as spray taps, showers and any item of water related equipment that can cause spray and aerosols.
- 3.4.2 The incubation period is generally two to ten days.
- 3.4.3 Symptoms include high fever, chills, headaches, muscular aches, breathlessness, diarrhoea and vomiting.

3.5 Growth

Conditions conducive to the multiplication of the bacterium in water systems include:-

- 3.5.1 The presence of sludge, scale, rust, algae and organic material.
- 3.5.2 Water temperature in the range 20 C to 45 C, the optimum being 37 C. The organism can exist in water at temperature below 20 C but growth is likely to be inhibited. In water at temperatures above 60 C, depending upon the duration of exposure, the organism may be killed.
- 3.5.3 The presence of materials in the water storage and distribution system such as leather, natural rubber and some plastics.
- 3.5.4 Presence of areas of low flow and stagnation in water systems such as pipework dead legs or where little used appliances are present.

3.6 Risk Situations

Situations, which could be conducive to an occurrence of the disease are: -

- 3.6.1 Poorly designed or maintained water systems in which conditions exist that allow the bacterium to survive and multiply.
- 3.6.2 The operation of equipment and fittings involving the discharge of aerosols which contain the bacterium from contaminated water systems.
- 3.6.3 The presence of a susceptible person or persons who may inhale the contaminated aerosols.
- 3.6.4 Sinks, showers or other water appliances that are not normally used or are used infrequently.
- 3.6.5 Wards/labs or departments, which are out of use for more than three days and which, as a result, may allow the organism to grow.
- 3.6.6 Hot and Cold water that fails to meet the specified temperature guidelines.
- 3.6.7 Building alterations and or change of use profiles of the water systems.
- 3.6.8 Additions / alterations to water systems and any associated water system equipment such as storage tanks and showers.
- 3.6.9 Failure to disinfect systems after additions / alterations to pipework.
- 3.6.10 Where secondary disinfection is used, failure to meet the required chemical levels in the water.
- 3.6.11 The use of hemp and unapproved jointing compounds.
- 3.6.12 The use of fittings that do not meet WRAS guidelines.

3.7 Pseudomonas

The CEL 08 (2013) Guidance for neonatal units (NNUs) (levels 1, 2 & 3), adult and paediatric intensive care units (ICUs) in Scotland is intended to minimise the risk of *Pseudomonas aeruginosa* infection from water. There are no areas within The State Hospital that this CEL applies to, therefore guidance on the control on pseudomonas is not incorporated within this document.

4. RESPONSIBILITIES AND DUTIES

4.1 Management Responsibility

4.1.1 Duty Holder

Defined as owner and who is ultimately accountable and on whom the duty falls to ensure safe operation of health care premises and is responsible for:

- ensuring Operational Procedures, Health, Safety and Risk Management arrangements are in place to meet policy requirements;
- providing resources for implementing and maintaining this policy;
- reviewing performance of this policy;

4.1.2 Designated Person

The Designated Person (Water) provides the essential senior management link between the NHS Board and its professional support, which also provides independence of the audit-reporting process. The Designated Person will maintain close liaison with the hospitals Infection Control Committee which incorporates the Water Safety Group (WSG) to provide an informed position at Board level and by:

- making appointments in writing for 'the Authorising Engineer (Water)' and 'the *Legionella* Risk Assessor';
- making appointments in writing for 'Responsible Person and Deputy Responsible Person (Water)' and 'Authorised Persons' (Water);
- ensuring through the Infection Control Committee that water is safe.

4.1.3 Responsible Person Water

The WSG will be led and chaired by a Responsible Person (Water) appointed by the Designated Person. He/she will possess sound professional knowledge of *Legionella* and water safety issues and have appropriate training. The appointment should be in writing by management to devise and manage the necessary procedures to ensure that the quality of water in healthcare premises is maintained. The Responsible Person (Water) should have sufficient authority to ensure that all operational procedures are carried out in an effective and timely manner and is required to liaise closely with other professionals in various disciplines. In addition, the Responsible Person (Water) should possess a thorough knowledge of the control of *Legionella*.

Pseudomonas outbreaks would have an over-bearing influence from clinical and cleaning procedures and would primarily come within the responsibility of the Infection Prevention and Control Team who would be represented on the Water Safety Group and from whom the Responsible Person (Water) would draw appropriate expertise via a consultant medical microbiologist. The role of Responsible Person (Water), as part of the Water Safety Group, as described above involves:

- advising on the potential areas of water-related risks and identifying where systems do not adhere to this guidance;
- liaising with the water authority (See Note 1 in Part A of SHTM04 - 1) and environmental health departments and advising on the continuing procedures necessary to ensure acceptable water quality;
- monitoring the implementation and efficacy of those procedures;
- approving and identifying any changes to those procedures;
- ensuring equipment that is to be permanently connected to the water supply is properly installed;

- ensuring adequate operating and maintenance instructions exist and adequate records are kept. Implementation of an effective maintenance policy must incorporate the preparation of fully detailed operating and maintenance documentation and the introduction of a Written Scheme and logbook system. The Responsible Person (Water) should appoint deputies to whom delegated responsibilities may be given. The deputies should act for the Responsible Person (Water) as delegated and directed. The Responsible Person (Water) should also be fully conversant with the design principles and requirements of water systems and should be fully briefed in respect of the cause and effect of water-borne organisms, including *Legionella pneumophila*. The role can extend to the operation and maintenance of associated plant. It is recognised that the Responsible Person (Water) cannot be an expert on all matters and must be supported by specialists in specific subjects such as water treatment and microbiology, but he/she must undertake responsibility for calling upon and coordinating the activities of such specialists. Roles and responsibilities may vary across NHS Boards depending on operational structures. The Responsible Person (Water) should be aware that manufacturers, importers, suppliers, installers and service providers have specific responsibilities that are set out in the Health and Safety Executive's Approved Code of Practice L8.

4.1.4 Authorising Engineer

An Authorising Engineer acts as an independent professional advisor to the healthcare organisation, appointed by the organisation with a brief to provide services in accordance with SHTM guidance. The Authorising Engineer acts as an assessor, making recommendations for the appointment of Authorised Persons, monitoring the performance of the service and providing an annual audit to the organisation's Designated Person.

4.1.5 Advanced Practitioner Infection Control (APIC) and Consultant Microbiologist

The Advanced Practitioner Infection Control (APIC) and consultant microbiologist are the persons nominated by management to advise on infection control policy. The policy should be acceptable to the infection control team and they should agree any amendment to that policy. They are to advise on procedures for the prevention of Legionnaires' Disease and *Pseudomonas aeruginosa* infection, and the microbiological aspects its control.

4.1.6 Water Safety Group

Water Safety Groups (WSG) within The State Hospitals Board for Scotland will be led and chaired, by the Responsible Person (Water) who will ensure that responsibility is taken for microbiological hazards that are identified by appropriate Group members. They will assess risks, identify and monitor control measures and develop incident protocols. The WSG will report to the Chair of the hospital Infection Control Committee and ensure a coordinated approach exists between Infection Prevention and Control Teams, clinical staff and Estates and Facilities on all water issues. There should be a clear line of responsibility to the Chief Executive through the Infection Control or other Committee. The Water Safety Group will be responsible for supporting, co-ordinating and reviewing operational management and controls in accordance with statutory requirements (such as COSHH and HSE ACOP L8) and mandatory requirements (such as SHTM 04-01), for when and where water is supplied, stored, distributed and used. This group will meet annually.

4.1.7 Deputy Responsible Person (Water)

The Deputy Responsible Person Water (DRP) should be contacted as required for support. In association with the Responsible Person and Infection Control team the DRP will implement and manage the necessary procedures to ensure that the quality of water in healthcare premises is maintained in line with the duties and responsibilities. This role, in

association with the responsible person, Advanced Practitioner Infection Control (APIC) and maintenance staff, involves:

- Possessing a thorough knowledge of the cause, effect and control of waterborne organisms, including *Legionella pneumophila*;
- Advising on the potential areas of risk and identifying where systems do not adhere to this guidance;
- Liaising with the Advanced Practitioner Infection Control (APIC) and Responsible Person and advising on the continuing procedures necessary to ensure acceptable water quality and monitoring the implementation and efficacy of those procedures;
- Ensuring equipment that is to be permanently connected to the water supply is properly installed and maintained;
- Ensuring adequate operating and maintenance instructions exist and adequate records are kept;
- Will act for the Responsible Person when he is absent or unavailable.
- Be fully conversant with design principles and requirements of water systems;
- Be aware that manufacturers, importers, suppliers, installers and service providers have specific responsibilities that are set out in the Health and Safety Commission's (2000) Approved Code of Practice L8.

4.1.8 Authorised Person

The Authorised Person has the key operational responsibility for the service, qualified and sufficiently experienced and skilled for the purpose. He/she will be nominated by the Authorising Engineer and be able to demonstrate his/her application through familiarization with the system and attendance at an appropriate professional course; a level of experience; evidence of knowledge and skills. The Authorised Person (Water) will be appointed in writing as the single person with sole responsibility for the Written Scheme for an individual water system. No work will be carried out on the water system without the knowledge and written consent of the Authorised Person. An important element of the Authorised Person's role is the maintenance of records, quality of service and maintenance of system safety (integrity). The Authorised Person will also be responsible for establishing and maintaining the roles and validation of Competent Person who may be employees of the organisation or appointed contractors. Larger sites may require more than one Authorised Person for a particular service. Administration duties, such as record keeping, should be assigned to specific Authorised Persons and recorded in the operational policies.

4.1.9 Competent Person

The Competent Person may be a Maintenance Technician / Tradesperson or Maintenance Assistant. The Tradesperson or Maintenance Technician may provide skilled installation and/or maintenance of a specialist service. He/she will demonstrate a sound trade background and specific skill in the specialist service. A maintenance technician is someone who has sufficient technical knowledge and the experience necessary to carry out maintenance and routine testing of the water, storage and distribution system. They will be appointed, or authorised to work (if a contractor) by the Authorised Person.

4.1.10 Installer

An installer is the person or organisation responsible for the provision of the water storage and distribution system and any equipment linked to that system.

4.1.11 Contractor

A contractor is the person or organisation designated by management to be responsible for the supply, installation, validation and verification of hot and cold water services, and for the conduct of the installation checks and tests. In relation to the control of *Legionella* for

example, it is essential to ensure that potential contractors have suitable qualifications (for example companies/individuals who are members of the *Legionella* Control Association).

4.1.12 Contract Supervising Officer

The person nominated by the management to witness tests and checks under the terms of contract. He/she should have specialist knowledge, training and experience of hot and cold water supply, storage and mains services. Note; This role within The State Hospitals Board for Scotland will be fulfilled by the Authorised Person / Responsible Person or Deputy Responsible Persons.

4.1.13 Departmental

Responsible Nurse / Clinical Staff / Departmental Managers / Line Managers are responsible for:

- ensuring that all staff are aware of this policy and are familiar with the relevant compliance procedures to manage and control water safety risks (*e.g. undertake and record a twice weekly review of water system outlets, to ensure flushing of little used outlets and removal of unused water systems in their devolved areas of responsibility*);
- putting into practice local compliance procedures, protocols and safe systems of work which are designed to reduce water safety risks;
- ensuring that all staff and workers engaged in healthcare provision have adequate information, training, instruction, supervision and support (this includes refreshing staff knowledge and skills at defined frequencies);
- monitoring the effectiveness of local compliance procedures and safe systems of work, including annual review of occurrence recording, investigation and management inspections (*such as through Infection Control Audit recorded by way of HEI Inspection Audit Tool*);
- ensuring that local policies and procedural guidelines are developed and maintained;
- ensuring staff receive suitable and effective support following any accidents or incidents relating to the management and control of water;
- ensuring that suitable and sufficient risk assessments are carried out by competent staff and that the findings are implemented or escalated as appropriate. All staff and workers engaged in healthcare provision and support services are responsible for:
- taking precautions and reasonable care with regard to their own safety and that of any other persons who may be affected by their actions and the environment;
- co-operating with policy, procedures and safe systems of work that are in place to minimise risk to persons and the environment;
- reporting of all incidents that arise, including near misses; assisting managers with the identification of any risks arising from the management and control of Water;
- Identifying, reporting and recording infrequently used appliances e.g. WCs, sinks, showers within area of responsibility;
- Maintain records of flushing regime;
- Arrange for a flushing regime to be carried out if one not already in place
- Attend appropriate training and instruction and ensuring practical skills are refreshed as required;
- Liaise with relevant Deputy Responsible Person (Water) and where required Responsible Person Water.

4.2 Assessment of Risk

The risk associated with *Legionella* is included within the risk assessment carried out and documented by Specialist contractor and commissioned every three years or as required. The risk associated with *Pseudomonas* will be risk assessed on the basis of high risk patient areas identified by the Infection Control Team. The assessments will identify priorities as part of a risk

based methodology and any risks identified in the assessment will be communicated and / or managed by the Estates Department.

The assessment will include:

1. The identification, location and condition of all water systems highlighting issues that may present a hazard.
2. The potential for aerosols to be produced.
3. Water temperature observations highlighting readings which may cause proliferation of bacterial growth.
4. The provision of a written scheme.

The potential risk associated with new developments, refurbishments and service reconfiguration will be considered and addressed by design / planning leads in the New Works or Minor Works.

The Responsible Nurse/Clinical Staff /Person in Ward/Lab or Department managers must use the Estates Department reporting system / procedure when water services are infrequently or no longer used and where changes or adaptations to water services, fixtures and fittings are required.

The Estates Department will assess the associated risks and implement the necessary control measures to manage the identified risks.

4.3 Risk Control Measures and Written Scheme

Risk control measures will be documented in the Written Scheme maintained by the Estates Department. The Written scheme identifies specific water management risk reduction tasks to be completed on water systems and associated equipment throughout the The State Hospitals Board for Scotland Estate.

The schedule of work and frequency rates of the specific water management risk reduction tasks will be stored electronically and the required tasks will be scheduled and automatically generated by the work management system.

The Responsible Person or Deputy (Water) will be manage the Written Scheme and ensure no work will be carried out on the water system without their knowledge and their written consent.

The Competent Person will undertake the tasks and duties described within the Water Management Regime and will maintain accurate and comprehensive records of all work undertaken whilst managing water systems. Any identified risks will be immediately reported back to the Authorised Person who will then inform the Deputy Responsible Person and the Infection Control team. Infection control team will inform and liaise with the Clinical staff Remedial actions required will be carried out by the Estates Department in conjunction with the Infection Control Team and all actions carried out will be recorded in the water management log book with the written scheme amended if required.

The Deputy Responsible Person will implement regular audit control monitoring to ensure that the written scheme is being implemented and is effective and sufficient. Also that remedial actions are being completed in a timely manner and recorded appropriately.

4.4 Measurement, Monitoring and Review / Audit Arrangements

The frequency and extent of routine monitoring will depend on the operating characteristics of the Water systems as detailed in the written scheme for each individual water system. The Deputy Responsible Person for the area shall carry out and ensure local performance assessment reviews include analysis of data from the Estates Monitoring and Building

Management Systems with graph printouts (where available), risk assessment action plans, progress of identified remedial actions, statistics from the Planned Preventative Maintenance schedule and monitoring of the system control report sheets. These reviews should be carried out a minimum quarterly or more frequently, if required. The Water Safety Group shall ensure a planned schedule to review the systems, to collect information and measure the efficiency, effectiveness and reliability of the management arrangements against set performance written scheme. The scheme may be changed as required to ensure the scheme is effective and any corrective actions are instigated as required.

4.4.1 Internal Audit Procedure:

- 4.4.1.1 This procedure will be audited at agreed intervals.
- 4.4.1.2 Prepare an Audit Programme and ensure the entire procedure is audited.
- 4.4.1.3 The Audit Programme will consist of planned audits on the following elements of the procedure:-
 - This Procedure document;
 - Documentation associated with this Procedure;
 - Training review and records;
 - Risk Assessments;
 - Written Schemes;
 - Schematic Drawings
 - Water Safety Log Book(s).
- 4.4.1.4 A report will be produced on the audit.

4.4.2 External Audit Procedure:

- 4.4.2.1 A duly appointed Authorising Engineer will audit the entire *Legionella* and Water Safety Systems within NHS Board annually.
- 4.4.2.2 A duly appointed **Authorising Engineer** for *Legionella* and Water Safety Systems will produce an annual report for management review.
- 4.4.2.3 A duly appointed **Legionella Risk Assessor** for *Legionella* and Water Safety Systems will update the *Legionella* risk assessment database annually, as appropriate.

4.4.3 Management Review:

- 4.4.3.1 The **Responsible Person (water)** will hold regular review meetings to confirm:-
 - Current compliance with *Legionella* and Water Safety System requirements.
 - Identification of any deficiencies and actions required to resolve.
 - Staff training needs.
- 4.4.3.2 The management review will be base on following:-
 - Results of internal audits.
 - Results of external audits.
 - Staff suggestions.
 - Training records.
 - Operation of the system and procedures over the last six months.

4.5 Training and Competence

Training provided and competency assessment will reflect the level of responsibility and involvement with risk assessments, risk prevention and day to day management of water systems. Staff training and competency records are kept and updated as part of Estates

Department procedures. New staff training should be identified within one month of joining the organisation and implemented within six months.

4.6 Reporting Structures

Water Safety Group - The general management structure within The State Hospitals Board for Scotland has clear reporting structure for the management and monitoring of The State Hospitals Board for Scotland Water Systems.

Estates Department Management - The general management structure within the department has a clear reporting structure for the day to day activities of managing The State Hospitals Board for Scotland Water Systems.

4.7 Hazard

In the event of an identified potential hazard there is a process of escalation with Estates Department, APIC and specialist support involved to effectively investigate and manage the situation.

4.8 Management Procedures

The monitoring of the effectiveness of management procedures for the water systems are assessed by the Water Safety Group, annually.

4.9 Design and Commissioning

Any new installation work carried out in The State Hospitals Board for Scotland involving water, must be designed, installed and commissioned in accordance with statutory and SHTM guidance documents listed within the policy and industry best practice.

4.10 Legionella Sampling

The State Hospitals Board for Scotland shall follow the ACOP L8, SHTM and best practice in a risk based approach regarding the circumstances under which sampling shall take place. Infection Control Committee have deemed no high risk areas within the hospital therefore sampling is not required.

4.11 Actions to be taken if Legionella is found in the water system

No positive legionella samples should go unaddressed. Actions should be based on risk assessment, building layout and use. The Consultant Microbiologist must be informed of all results immediately and will in turn inform clinical and other staff as appropriate.

The following nominated responsible person(s) should be informed of the Serotype and number of bacteria:

Name	Job Title	Telephone No	E-mail Address
Kenny Andress	Head of Estates & Facilities	01555 842162	kenny.andress@nhs.scot
Brian Maclean	Estates Officer	01555 842165	brian.maclean@nhs.scot
Jenny Findlay	Estates Co-ordinator	01555 842101	Jenny.findlay2@nhs.scot

The actions required will depend upon the number of bacteria identified and can be summarised as follows for hot and cold water systems:

LEGIONELLA BACTERIA cfu / litre	ACTION REQUIRED
<p>> 100</p> <p>Up to 1000</p>	<p>Either:</p> <p>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.</p> <p>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.</p>
> 1000	<p>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.</p>

Care must be taken especially to clean and disinfect showerheads as appropriate.

Suspected Case of Legionnaires' Disease

The following nominated responsible person(s) should be informed of the Serotype and number of bacteria if known at the time. Also advise of the number of suspected cases where they are.

Name	Job Title	Telephone No	E-mail Address
Kenny Andress	Head of Estates & Facilities	01555 842162	kenny.andress@nhs.scot
Brian Maclean	Estates Officer	01555 842165	brian.maclean@nhs.scot
Jenny Findlay	Estates Co-ordinator	01555 842101	Jenny.findlay2@nhs.scot

Legionnaire's disease is reportable under RIDDOR if there is a belief that an employee has caught the disease at their workplace. The nominated responsible person(s) will then inform the Environmental Health Officer / Health and Safety Executive and ask for their immediate advice and assistance. It is normal for them to send in a team to investigate and rectify the problem. It is important for them to be able to trace where the disease has come from. Do not drain any systems until told to do so. **BUT DO ISOLATE them from service.**

Do not speak to anyone about the problem other than the named contacts. Do not make any comment to the press.

4.12 Outbreak

Action to be taken in the event of an outbreak:

If a member of staff, patient or visitor is suspected of having contracted Legionnaires' Disease at any The State Hospitals Board for Scotland property, the suspected occurrence will be reported to the Responsible Person Water and the Advanced Practitioner Infection Control (APIC) who will inform Consultant in Public Health Medicine (CPHM).

The Control of Infection Team and Public Health and Environmental Health Officers will search for the source of the organism responsible for the infection. The Responsible Person / Deputy Responsible Person (Water) for the site in question will ensure that no draining or disinfecting takes place before samples have been taken. They will also give specialist information on the water supply system and indicate where samples can be taken.

The Responsible Person / Deputy Responsible Person (Water):

- a) Details of all associated equipment, location, technical information operating, maintenance and spares information on all areas being investigated.
- b) A list giving location of properties used for dental care.
- c) Information on any local excavations or earth moving work, alterations to water supply and drainage systems or any other factors, which may have a bearing on the site.
- d) Details of cleaning, maintenance, modifications and all control measures taken.
- e) Must provide risk assessment/audit records or all areas being investigated.

The Responsible Person / Deputy Responsible Person (Water) will arrange to have work carried out on any system, which the investigation team feels is necessary.

5. COMMUNICATION

The clinician responsible for the ward shall be informed in advance prior to the water sampling. In advance of sampling at the agreed outlets/areas of the water system the independent company, clinicians, Infection Control Team and Estates shall meet and agree the actions to be followed in the event of a positive result. As a matter of routine the Infection Control Team secretary will put out a reminder to relevant staff ahead of any routine sampling exercise. Any staff member who organises additional sampling is responsible for this communication themselves.

6. RECORDS

The Log book be it either Electronic or Hard copy documents must be kept up to date and all written scheme information, operational records for the maintenance, monitoring and system alterations for all systems and plant must be accurately retained. It is vital that these records are regularly updated and readily available.

7. REVIEW ARRANGEMENTS

To ensure that the maintenance and operational arrangements remain effective, the condition and performance of all water systems shall be routinely monitored. This shall involve:

- checking the performance of the system and its component parts
- inspecting the accessible parts of the system for damage and signs of contamination
- monitoring to ensure that any treatment regime in use continues to control to the required standard
- auditing of record / trend analysis

In addition, all local procedures and performance data shall be updated as a result of regular, ongoing monitoring and audit arrangements.

The Authorising Engineer along with a Responsible Person of the area shall interpret the results of monitoring and where necessary any remedial actions shall be actioned and recorded.

The Water Safety Group shall review the policy, operational, maintenance and design procedures on a regular basis and shall update as required to take account of new legislation, guidance, changes to personnel, procedures, protocols etc. and also as a result of audit findings.

8. POLICY REVIEW AND FORMAT

This policy will be formally reviewed every 3 years.

The State Hospitals Board recognises the need to ensure all stakeholders are supported to understand information about how services are delivered. Based on what is proportionate and reasonable, we can provide information / documents in alternative formats and are happy to discuss with you the most practical and cost effective format suitable for your needs. Some of the services we are able to access include interpretation, translation, large print, Braille, tape recorded material, sign language, use of plain English / images.

If you require information in another format, please contact the Person Centred Improvement Lead on 01555 842072.

Key Stakeholders	Consulted (Y/N)
Patients	N/A
Staff	N/A
TSH Board	N/A
Carers	N/A
Volunteers	N/A

The State Hospitals Board for Scotland

Operations / Facilities

WATER SAFETY PROCEDURES FOR CLINICAL STAFF AND DEPARTMENTS

CLINICAL STAFF & DEPARTMENT PROCEDURES

TO BE READ IN CONJUNCTION WITH THE STATE HOSPITALS BOARD FOR SCOTLAND WATER SAFETY POLICY.

1. GENERAL

1.1 Responsible Nurse / Clinical Staff / Departmental Managers / Line Managers are responsible for:

- ensuring that all staff are aware of this policy and are familiar with the relevant compliance procedures to manage and control Water safety risks (e.g. *to ensure flushing of little used outlets and removal of unused water systems in their devolved areas of responsibility*);
- putting into practice local compliance procedures, protocols and safe systems of work which are designed to reduce Water safety risks;
- ensuring that all staff and workers engaged in healthcare provision have adequate information, training, instruction, supervision and support (this includes refreshing staff knowledge and skills at defined frequencies);
- monitoring the effectiveness of local compliance procedures and safe systems of work, including annual review of occurrence recording, investigation and management inspections (*such as through Infection Control Audit recorded by way of HEI Inspection Audit Tool*);
- ensuring that local policies and procedural guidelines are developed and maintained;
- ensuring staff receive suitable and effective support following any accidents or incidents relating to the management and control of Water;
- ensuring that suitable and sufficient risk assessments are carried out by competent staff and that the findings are implemented or escalated as appropriate;
- arrange for the removal of infrequently used sinks and showers and any other water systems. Inform the Responsible Person (Water) of any temporary ward / office areas within area of operation.

1.2 All staff and workers engaged in healthcare provision and support services are responsible for:

- taking precautions and reasonable care with regard to their own safety and that of any other persons who may be affected by their actions and the environment;
- co-operating with policy, procedures and safe systems of work that are in place to minimise risk to persons and the environment;
- reporting of all incidents that arise, including near misses; assisting managers with the identification of any risks arising from the management and control of Water;
- Identifying infrequently used appliances e.g. WCs, sinks, showers within area of responsibility and recording and reporting these as directed
 - Maintain records of flushing regime.
 - Arrange for a flushing regime to be carried out if one not already in place.
 - attend appropriate training and instruction and ensuring practical skills are refreshed as required.
 - Liaise with relevant Deputy Responsible Person (Water) and where required Responsible Person Water.
- Infrequently Used Taps WCs or Shower Heads (Responsible Nurse/Clinical Staff/Person in Ward or Department). Before carrying out the following procedure the need for these taps, WCs, and showers should be identified and if no longer required the taps, WCs, showers, and redundant pipework, including branch tees should be removed or disconnected.

- Where outlets are used infrequently, systems shall be put in place to ensure regular flushing of these outlets. The frequency of the flushing shall be determined by risk assessment but shall be at least twice weekly for two minutes on each service hot and cold. This procedure shall be logged.

2. LEGIONELLA

Potential risk associated with Legionella or other similar waterborne organisms.

2.1 Situation

This is a general guidance to raise awareness of the potential infection risk posed by water in healthcare facilities and also outline the recommended actions to minimise any potential risk associated with legionella or other similar waterborne organisms.

2.2 Background and Assessment

The control of waterborne infection is mandatory and simple steps are issued by HSE and expert bodies in Scotland to help staff do this. We are required to provide evidence of compliance with these steps.

2.3 Requirements

All staff are to ensure that:

- Senior Charge Nurse (SCN) to ensure that all handwash basins are adequately cleaned.
- Any problems or concerns relating to safety, maintenance (e.g. temperature or flow) and cleanliness of the handwash basins or other water outlets are alerted to Domestic Services and/or Property Services via the appropriate channels.

2.4 Low Use Outlets (e.g. any outlet that is not used for 3 days in a row)

- Senior Charge Nurse must identify all low usage outlets (hot and cold) and liaise with Estates Department around their removal. Where this is not possible staff must run the outlet at maximum flow first thing for a period of two minutes at least twice per week.
- As there is a requirement to keep a record of this flushing regime, this task has been incorporated into the Estates Department Planned Preventative Maintenance (PPM) System.
- Senior Charge Nurse must identify change of use and liaise with the Estates Department around their removal.

The State Hospitals Board for Scotland

Operations / Facilities

ESTATES PROCEDURES

ESTATES PROCEDURES

TO BE READ IN CONJUNCTION WITH THE STATE HOSPITALS BOARD FOR SCOTLAND WATER SAFETY POLICY.

1. REPORTING PROCEDURE AND SUPERVISION

- 1.1 Managers are responsible for ensuring the duties identified in this policy for areas under their responsibility are carried out.**
- 1.2 Head of Estates & Facilities, Estates Co-ordinator and Estates Officer will supervise staff** (in-house or contractors) involved in carrying out PPM's, emergency action and modifications to water services related to the prevention of Legionnaires' Disease. They should also carry out the following duties:
- (a) as far as reasonably practicable ensure that staff required to work on water systems within their work area have no obvious health problems, which could cause infection to be spread via the water system.
 - (b) ensure that staff are properly equipped and not put at risk while carrying out work associated with the prevention of an outbreak of Legionnaires' Disease.
 - (c) report system faults and safety lapses which they consider detrimental to water quality or increase the risk of an occurrence of Legionnaires' Disease, to the Deputy Responsible Person (Water).
- 1.3 Craftsperson(s) will** carry out PPM's, alterations and / or modifications to the water system as directed and report system faults or defects via their Supervisor.
- 1.4 Where there is more than one Deputy Responsible Person (Water) on any one site** then they will deputise for one another during periods of absence in all matters, which affect their nominated statutory duties in respect of the control, and / or prevention of Legionnaires' Disease.

2. MAINTENANCE AND OPERATION

These responsibilities are based on guidance contained in the L8 ACOP The Control of *Legionella* Bacteria in Water Systems and SHTM 04-01 'Water Safety for Healthcare Premises' Parts A – G.

2.1 Temporary Closure of Wards / Departments and Plant

Any ward/lab/ or department that has been closed for a temporary period of seven days or more shall have flushing procedures carried out and documented to prevent the proliferation of *Legionella* bacteria. If there is no documentation the assumption will be that flushing has not been done.

- 2.1.1** All taps (hot and cold) must be allowed to run for a period of not less than 2 minutes on an at least twice weekly basis and recorded.
- 2.1.2** All W.C. cisterns must be flushed at least twice weekly.
- 2.1.3** All showers and bidets must be run for a period of 3 minutes on an at least twice weekly basis.
- 2.1.4** The Estates Department is responsible for keeping records of all systems and plant temporarily out of use showing relevant inspections and dates.
- 2.1.5** The Responsible Person Water along with the relevant Deputy Responsible Person (Water) for that area shall be notified when any temporary / permanent closures of wards, departments or other buildings (including plant) takes place.

Conversely they should be notified when any such property, ward or plant returns to normal usage.

- 2.1.6** A record of permanently disconnected water services should be kept by the Estates Department. Copies of this record should be forwarded to: -
a) the relevant Deputy Responsible Person (Water) so that centrally held drawings and records can be updated.

2.2 Infrequently Used Taps WCs or Shower Heads (Responsible Nurse / Person in Ward or Department)

Before carrying out the following procedure the need for these taps, WCs, and showers should be identified and if no longer required the taps, WCs, showers, and redundant pipework, including branch tees should be removed or disconnected. Where outlets are used infrequently, systems shall be put in place to ensure regular flushing of these outlets. The frequency of the flushing shall be determined by risk assessment but shall be at least twice weekly for two minutes on each service hot and cold. This procedure shall be logged and these details entered into the water log book, written paper or electronic.

2.3 Domestic Hot Water Calorifiers

All domestic hot water calorifiers shall be subject to annual water testing and the following PPM's: -

- 2.3.1** Calorifiers that are monitored by a building management system (BMS) and can have their storage and return temperature verified will be inspected and be subject to a drain and fill routine on a 48-week basis. The calorifier will be drained, cleaned and if necessary disinfected if required to remove scale and sludge, refilled, drained and refilled. Prior to draining the calorifier temperature will be recorded, the temperature raised to 70 C and held at that temperature for one hour, isolated then drained. After inspection, cleaning and where applicable access doors replaced the calorifier will be filled, drained and refilled and temperature increased to between 65 C and 70 C, for one hour before being returned to service.
- 2.3.2** On hot water storage, the secondary flow and returns should be monitored, by the BMS system. When there is no BMS system in place, storage, secondary flow and return temperatures will be recorded manually on a monthly basis. The storage and secondary flow temperatures should be 60 C +/- 2 deg. C and the return temperature 52 C +/- 2 deg. C. A written record of each result is to be passed to the Deputy Responsible Person (Water) who will update records. Where temperatures are outwith the above limits, this will be recorded and remedial action will be undertaken. A record will be passed to the Responsible Person Water (Tayside) so that relevant property Log Book can be updated and the success of remedial action recorded.

2.4 Domestic Hot Water Distribution

- 2.4.1** Sentinel Taps - Monthly water temperature at the nearest and furthest identified taps in each distribution system shall be checked if not monitored by BMS system. The temperature should reach a steady value between 50 C and 60 C within ONE MINUTE of running the water at full flow. If this temperature is not achieved an investigation will be carried out and remedial action taken and recorded. If thermostatic mixing valves are fitted, the temperature reading shall be taken on the pipe surface immediately before the valve. A written record of

each result shall be maintained in the system's Log Book. The draw off point used for each test should be noted in the Log Book.

- 2.4.2** Annually – a representative number of hot water distribution tap outlets within the distribution system shall be checked for temperature as detailed in 2.5.1. In all cases, the temperature data shall be forwarded to the Deputy Responsible Person (Water) for inclusion in the Log Book.

2.5 Cold Water Systems

- 2.5.1** Six monthly (at least once in the summer and once in the winter) water temperatures shall be checked at the discharge and surface of the coldwater tank. The temperature should be checked at the make up (ball valve) and remote from the ball valve. The temperature shall be less than 20 C. On cold-water storage systems the incoming mains and outgoing cold-water temperatures should be recorded by the BMS. Additionally remote points should also be incorporated i.e. water meter.
- 2.5.2** Sentinel Taps - Monthly water temperature at the nearest and furthest identified taps in each distribution system shall be checked. The temperature shall be less than 20 C within TWO MINUTES of running the water at full flow. If this temperature is not achieved an investigation will be carried out and remedial action taken. A written record of each result shall be maintained in the system's Log Book. The draw off point used for each test should be noted in the Log Book.
- 2.5.3** Annually – a representative number of cold water distribution tap outlets within the distribution system shall be checked for temperature. In all cases, the temperature data shall be forwarded to the Deputy Responsible Person (Water) for inclusion in the Log Book.
- 2.5.4** All cold water storage tanks are to be examined annually, cleaned and disinfected. These actions must be recorded and entered into the log book.
- 2.5.5** Any repairs, alterations required to water tanks or pipework should be reported to the Deputy Responsible Person (Water) and carried out prior to any disinfection process commencing. These actions should be identified and recorded in the log book.
- 2.5.6** There should be no more than a 2 degrees C differential between the tank outflow and the further away sentinel tap.

2.6 Shower Heads

The period between cleaning of showerheads will be determined by risk assessment. Irrespective of the risk assessment showerheads and hoses shall be dismantled, cleaned, descaled and disinfected at the minimum of a 12-weekly timescale as stated in ACoP L8. This can either be carried out in-house or by an approved contractor. All cleaning procedures must be recorded and entered into the log book.

2.7 Air Conditioning Plant (Evaporative Tower)

None installed within The State Hospitals Board for Scotland

2.8 Legionella Testing

For legionella testing The State Hospitals Board for Scotland shall follow the ACOP L8 and SHTM 04-01 procedures and best practice guidelines in a risk based approach regarding the

circumstances under which testing shall take place. The Infection Control Committee have deemed patients and staff as low risk and routine testing for legionella is not required.

Legionella Testing:

- (a) when an outbreak is suspected or has been identified.
- (b) where patients are identified as being 'at risk' e.g. immunologically suppressed.
- (c) where there has been a failure of the temperature regime or dosing system the Responsible Person Water in conjunction with the Deputy Responsible Person (Water) for that particular site, after discussions with the relevant microbiologist, shall decide what actions are necessary including the need to test water and patients for Legionella. Decisions on where and when to test with regard to the level of patient risk shall be agreed in discussion with the Estates Department. This will be based on trends and data gathered from the system monitoring procedures.

3. DESIGN AND COMMISSIONING

Any new installation work carried out in The State Hospitals Board for Scotland involving water services, ventilation and air conditioning, must be designed and commissioned in accordance with the Statutory Requirements and SHTM's. New Works, Minor works and Estates must issue a set of these design, installation and commissioning standards with or within tender documentation for contractors to comply with. These will include both bacteriological and tap outlet temperature results.

4. SAFETY PROCEDURES

The control strategy used by The State Hospitals Board for Scotland to reduce the risk of legionellosis is to operate water services under conditions, which prevent or minimise the growth of legionella bacteria. This is achieved by a combination of water tank cleaning and disinfection, draining / flushing and inspection of domestic hot water calorifiers, monitored hot / cold water temperatures, and flushing of little used outlets. The need to protect patients, visitors, members of the public, hospital staff and staff engaged on work, is the first priority for any safe system. It is also important to ensure that vital supplies of water etc are not interrupted for more time than is necessary to carry out regular routines. In order to ensure the protection of all who could be potentially affected, the following points must be adhered to: -

- a) All work must be carried out with the minimal generation of aerosols.
- b) Estates staff and contractors must wear all necessary and appropriate protective clothing and equipment. Any faulty equipment must be reported to the Supervisor.
- c) Draining must be carried out using the correct drain valve with hoses which are placed into a gully for at least 300mm.
- d) All disruptions in supplies must be approved by Estates Department who shall make arrangement with the user prior to any work commencing.
- e) Disinfection must be carried out by trained and competent staff and in accordance with Estates Department – Domestic Water Services Disinfection guidance document.

5. RECORDS

The Log book whether paper based or electronic must be kept up to date and all written scheme information, operational records for the maintenance, monitoring and system alterations for all systems and plant must be accurate and retained. It is vital that these records are continually updated and readily available for audit and review.

The following procedure must be used:-

- a) All maintenance PPM's will be issued as standard dockets. These dockets will be kept in storage for a period of 5 years and readily available.

- b) A Water Log Book will be kept for record purposes and will be readily available. It will contain all the necessary monitoring actions, based on the risk assessment. Details of information to be recorded from PPM's including dates, faults, and non conformance Remedial actions, and the outcome of these actions, taken will be recorded in the relevant Legionella Log Book by the Deputy Responsible Person (Water).
- c) Any changes to ventilation, air conditioning, hot and cold-water services etc., must be recorded on "as fitted drawings" and must be readily available. The Estates Department is responsible for any changes that occur will ensure that these drawings are updated.
- d) Any futures changes in PPM frequency for water systems must be agreed with the Deputy Responsible Person (Water). These changes must be recorded and entered in the Legionella Log Book as an amendment.
- e) When tenders or quotations are sought for any work involved in the prevention of Legionnaires' Disease it should be made clear that the contractor must provide accurate documentation of the work involved. This should be in the same format as internal estates department documents.
- f) SCART documentation to be completed and held on web based system.
- g) Training records should be added to the relevant log book.
- h) The log book should contain lines of communication and contact details relevant to the buildings contained in the log book.

TASK	BY WHO M	TWICE WEEKL Y	WEEKL Y	MONTHL Y	QUARTERL Y	6 MONTHL Y	ANNUA L
Hot & Cold Water Services							
Flushing little used outlets		X					
Sentinel tap temperature s				X			
All other outlet temperature s							X
Calorifier flow and return temperature s				X			
Mains temperature							X
CWST temperature s							X
CWST inspection							X
Calorifier internal inspection							X
Calorifier blowdown							X
Showerhea d & hoses, spray tap inserts clean and descale					X		
Rotation of duty / standby pumps		X					
Verify accuracy of schematic drawing							X
Annual review							X
Flush and purge to drain of expansion vessels				X			