

Code of Practice for the Control and Prevention of Legionella Bacteria in Water Systems

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1. Overview

The legionella bacterium is a common one which survives and multiplies in water. It is widespread in natural and fresh water including rivers, lakes, streams and ponds and may also be found in wet soil. Water temperatures in the range of 20° C to 45°C favour growth of the bacteria. It is uncommon to find proliferation below 20°C and, above 60°C; it can only survive for a few minutes and cannot multiply. The route of infection is through inhalation into the lungs of aerosol sized droplets of water carrying the Legionella bacteria. Aerosols containing such droplets may be generated by many methods but in university premises the common ones are by using taps, showers and possibly in ventilation systems.

2. Purpose

The COSHH Regulations relate to the risks from hazardous micro-organisms, including legionella and chemicals such as biocides and chlorine. Under these regulations risk assessments and the adoption of appropriate precautions are required to be made. The Approved Code of Practice and Guidance, L8 “Legionnaires’ disease – the control of legionella bacteria in water systems”, sets out further statutory requirements for dealing with this risk. Also refer to technical guidance HSG274. This guidance is for duty holders, which includes employers, those in control of premises and those with health and safety responsibilities for others, to help them comply with their legal duties.

3. Scope

The University of Greenwich, as a responsible employer, owner and controller of premises is aware of the legal duties owed to staff, students, building occupiers, contractors and others concerning the provision of safety related information of the control of legionella bacteria within the hot and cold-water systems of the premises.

This procedure has been developed, in part, to satisfy the requirements and obligations under current legislation and to provide the means from which exposure to legionella bacteria can be prevented within University of Greenwich owned or managed premises.

4. Responsibilities

NOTE: Though compliance with this policy may be delegated to staff, or undertaken by contracted service providers, accountability cannot be delegated.

In the case that any post mentioned in this document being vacant, the immediate Line Manager will assume responsibilities made under this Policy, as per the organisational charts on pages 3 & 4 of this policy.

Chart 1.0: UofG Management Lines of Responsibility

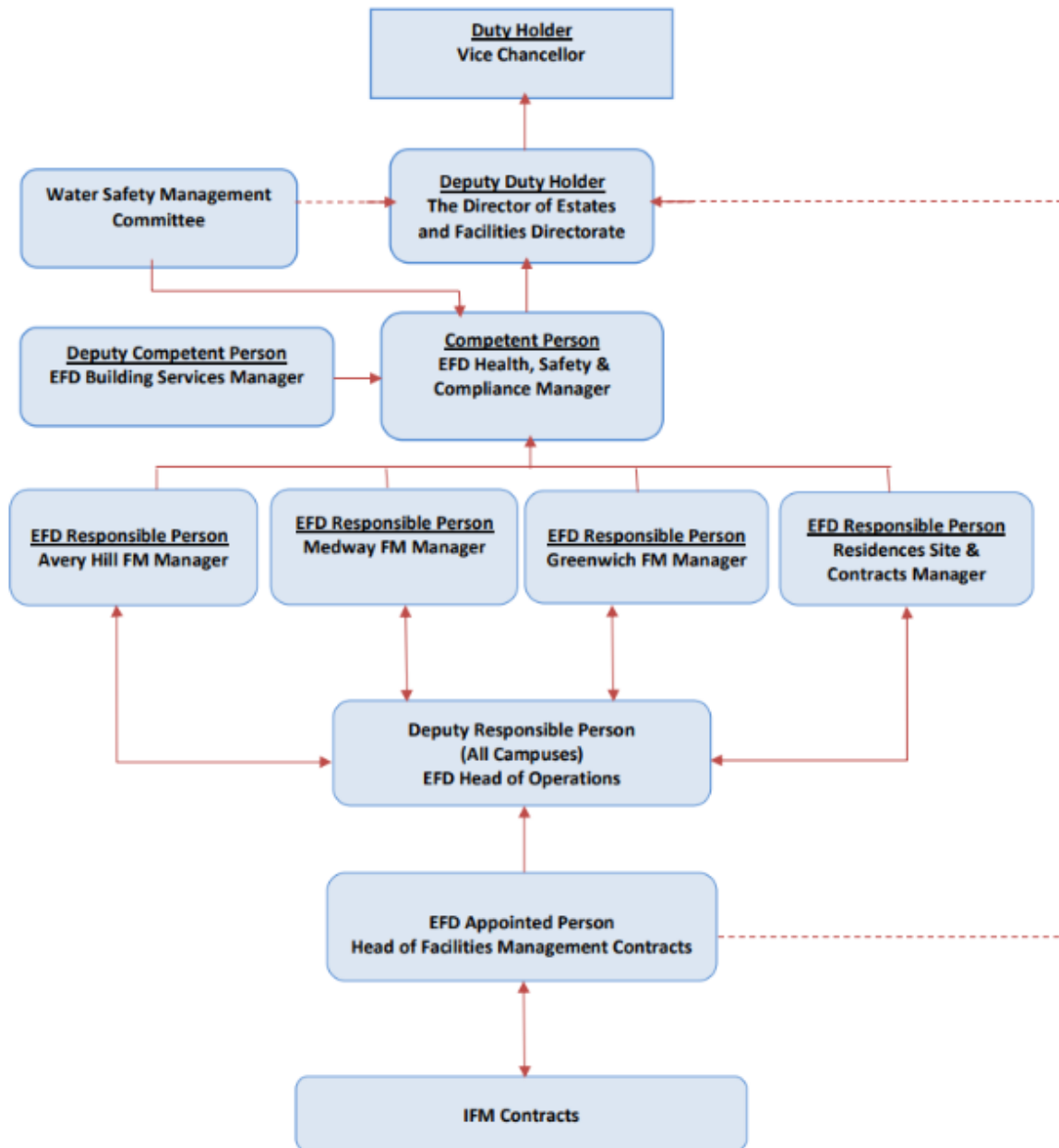
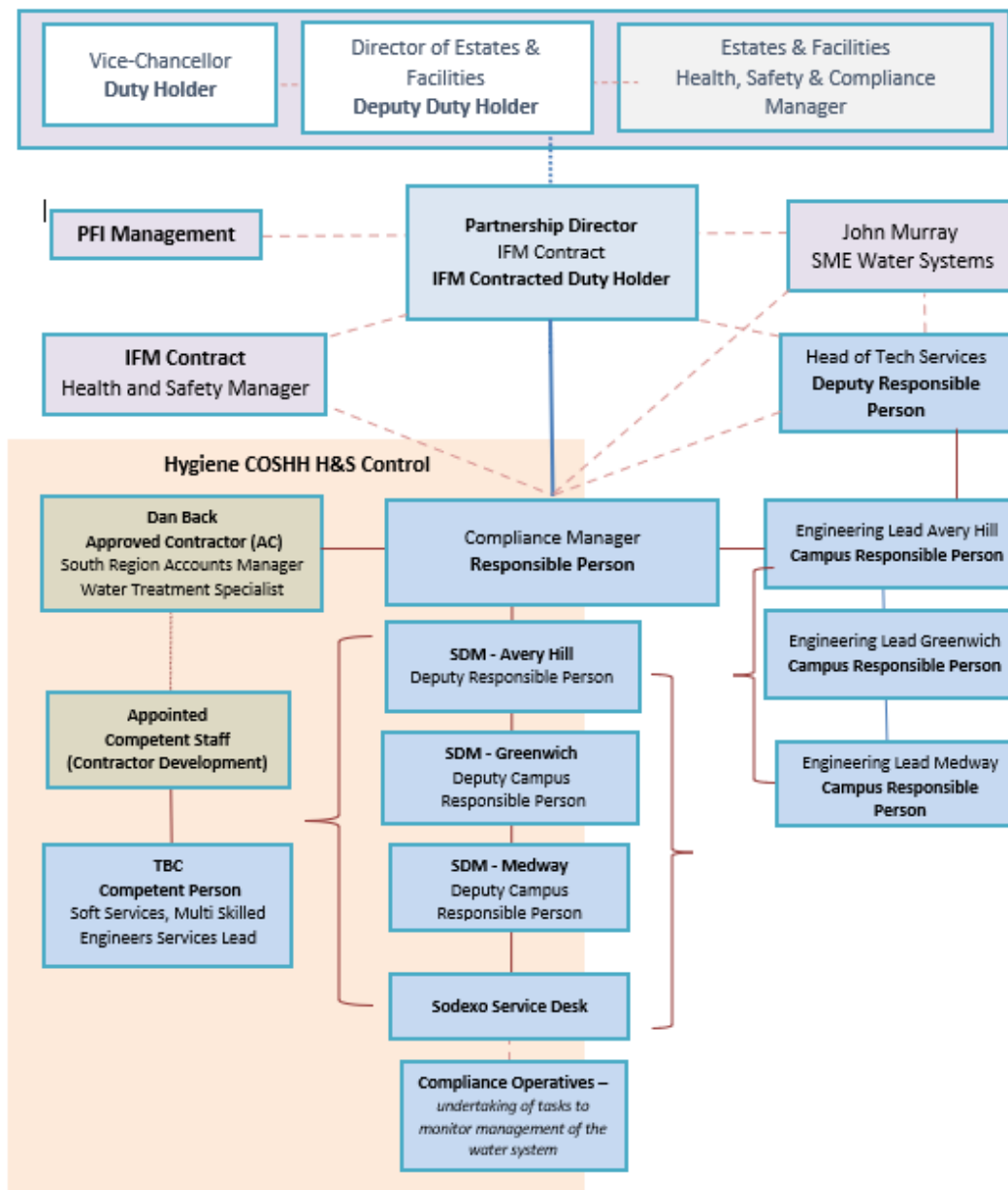


Chart 2.0: IFM Contract Lines of Responsibility



4.1. Estates & Facilities Roles and Responsibilities

- 4.1.1 **The Vice Chancellor* (VC)** is the **legal duty holder** responsible for ensuring that the University provides a safe environment for all of its staff, students and visitors. This includes the potential health risk posed by exposure to Legionella bacteria. The VC has nominated the Director of the Estates and Facilities Directorate to assist in discharging this legal duty and will ensure they are provided with sufficient resources to develop and implement adequate Legionella control measures.
- 4.1.2 **The Executive Director of Estates and Facilities Directorate***, will undertake the role of **Deputy Duty Holder**, and is responsible for the provision and maintenance of safe services and buildings, including the quality of water supplies within the University. They will ensure that the procedures instituted demonstrate that any person to whom a statutory duty falls has fully appreciated the actual and potential risks of Legionella bacteria.
- 4.1.3 **The EFD Health, Safety & Compliance Manager*** acts as the **UoG Legionella Competent Person** possessing adequate professional knowledge and having had appropriate training. The post holder will devise and manage the necessary procedures for the prevention of Legionnaires' disease. The UoG Legionella Competent Person will offer advice and support to the responsible persons on all aspects of water management and Legionella control and seek external advice where this is beyond their level of competence.
- 4.1.4 In the absence of the UoG Legionella Competent Person then this position will be undertaken by the **EFD Building Services Manager**, who will possess the appropriate skills and qualifications to undertake this role.
- 4.1.5 **EFD Head(s) of Campus*** are the **UoG Responsible Person (s) (Legionella)** and take managerial responsibility for implementation of the policy at their campus, having had appropriate training. Training will be refreshed on a three-yearly basis.
- 4.1.6 **EFD Associate Director of Campus Management*** - In the absence of the UoG Responsible Person, the position of **UoG Deputy Responsible Person** will be carried out by the EFD AD Campus Management, who will possess the appropriate skills and qualifications to undertake this role.
- 4.1.7 **The EFD Associate Director of Facilities Management Contracts*** will undertake the role of **Appointed Person (Legionella)** and is responsible for ensuring the IFM contractor fulfils all water management tasks as per contract and in compliance with the frequencies stipulated within SFG20. *- Appointed in writing.
- 4.1.8 A Water Safety Management Committee (WSMC), shall be set up, chaired by either the UoG Competent Person or EFD Contract Assurance and Business Manager with diarised meetings at a frequency of every 3 months (more frequent by exception).
- 4.1.9 All other Estates and Facilities Directorate staff involved with carrying out tasks as required by the policy should have appropriate training and three yearly refresher training.

4.2. IFM Contract Service Provider Roles and Responsibilities

4.2.1 **The Partnership Director (Universities)** is the **Contracted Duty Holder (IFM Contractor)** They shall be appointed in writing by the UofG Deputy Duty Holder. They are responsible for the organisational arrangements (strategic leadership, direction and overview) which will ensure that compliance with standards is achieved (including proposed developments that take account of the impact on water safety). Any management issues (including water system issues) will be adequately resourced and resolved, and then reported to the Water Safety Management Committee as appropriate. Whilst the Contracted Duty Holder (IFM Contractor) will not typically have day to day technical or operational duties, they will be supported in the role by a structure that delivers governance, assurance and compliance. They shall ensure that they, their staff and contractors follow the detail as written within ACOP L8 Para 76, Pages 20/21.

In addition, they shall be responsible for:

- a) Immediately informing the University of any suspected Legionella, or other waterborne pathogen outbreak / incidents occurring, including taking an active role in any investigations.
- b) Ensuring the UofG Legionella Policy is delivered
- c) Ensuring the IFM contract is adequately resourced to undertake all water quality and legionella related PPM and reactive tasks.
- d) Attending updated management training at least every three years, or sooner if determined by the training needs analysis

4.2.2 **The Contracts & Compliance Manager** is the **Contracted Appointed Person (Water)**. They are appointed in writing by the IFM Contractor AE (Water). To facilitate this role the Contracted Responsible Person (Water) will be required to liaise closely with colleagues in various disciplines and as such will be supported by the Contracted Deputy Responsible Person and SME (Water) to ensure the availability of suitable provision to maintain the service. The Contracted Responsible Person (Water) will deputise in the absence of the Contracted Duty Holder (IFM Contract) (Water) and will act on their behalf. They shall ensure that they, staff under their line management and contractors under their instruction follow the detail as written within ACOP L8 Para 76, pages 20/21

The Contracted Responsible Person (Water) shall:

- e) Ensure that those within the IFM team with water management responsibilities are suitably trained Competency training shall be in accordance with: Water Systems Standard Operating Procedure PR/SOP/Water V1.0 2020 Section 4.6 Competency and as advised through Ingenium as part of employee Performance Development Records PDR
- f) Inform the University on any area of non-compliance, and follow up with arrangements to rectify
- g) Appoint a competent specialist contractor to deliver suitable and sufficient legionella risk assessments

- h) Oversee and monitor the performance of the contractor and feed back to the Water Safety Management Committee on programme
- i) Ensuring that there is a robust method of recording (with a suitable audit trail) of:
 - Legionella risk assessments and works arising from them
 - Completion of remedial works within required timescales
 - Temperature, inspections and other monitoring carried out by the specialist contractor.
- j) Ensuring that appropriate action is taken in response to a microbiological sample result outside normal parameters.
- k) In liaison with the University take appropriate action in the event of a reportable case of Legionnaires Disease or of being notified of an outbreak.
- l) Attend Water Safety Management Committee meetings
- m) Assist with annual management audits completed by the SME (Water)
- n) Attend updated legionella control and awareness management training at least every three years or sooner if determined by the training needs analysis.

4.2.3 **The Head of Technical Services** will fulfil the role of **contracted Deputy Responsible Person (Water)**. They are appointed in writing by the IFM Contract Duty Holder (Water). They shall ensure that they, staff under their line management and contractors under their instruction follow the detail as written within ACOP L8 Para 76, Pages 20/21

The post holder shall:

- a) Support the Contract Responsible Person
- b) Deputise for the Contract Responsible Person in their absence
- c) Attend Water Safety Management Committee meetings
- d) Attend updated management training at least every three years or sooner if determined by training needs analysis and in accordance with Water Systems Standard Operating Procedure PR/SOP/Water V1.0 2020 Section 4.6 Competency and as advised through Ingenium as part of employee Performance Development Records PDR.

4.2.4 **The Subject Matter Engineer (Water)** will be appointed in writing by the Contract Duty Holder (Water). The SME (Water) shall:

- a) Make recommendations for the appointment of all with dedicated water management responsibilities within the IFM contract. Ensure certificates of appointment are issued detailing areas of responsibility and limitations
- b) Advise and support the RP's and AP(Water), their deputies and the University on positive water sample results as well non-compliant issues identified through PPM tasks and what actions can be taken to resolve them
- c) Undertake annual management audits
- d) Monitor performance through quarterly record audits
- e) Review and identify changes needed to the UofG Legionella policy and

supporting documents, including those owned by the IFM contractor

- f) Assist with risk assessment reviews
- g) Attend the Water Safety Management Committee (WSMC) meetings
- h) Deliver training based on training needs analysis or competence assessments. Legionella Control Policy 9
- i) Support and advise the University on legislation and HSE Guidance on the control of Legionella.
- j) Ensure that the requirements detailed within ACOP L8 Para 76, Pages 20/21 are followed

4.2.5 **The Campus Service Delivery Manager(s)** will fulfil the role of **Campus Responsible Person (Water)**. The Campus Responsible Person should have the status and sufficient authority, competence & knowledge of the water systems to ensure that all operational procedures and precautionary measures are being carried out in a timely and effective manner. They are appointed in writing by the Contract Duty Holder (Water).

To facilitate this role the Campus Responsible Person (Water) will be required to liaise closely with their direct reports, external contractors and the Contract Responsible Person (Water). They shall ensure that they, staff under their line management and contractors under their instruction follow the detail as written within ACOP L8 Para 76, pages 20/21.

In addition, the post holder shall:

- a) Ensure that the recommendations given in the legionella risk assessments are completed in a timely and effective manner with suitable records kept.
- b) Ensure that a copy of all legionella risk assessments and logbook records are made available to whosoever wishes to inspect such records.
- c) Assume the day-to-day responsibility for the management and control of any identified risk from legionella bacteria in the water systems managed and operated by Estates & Facilities.
- d) Implement processes to ensure that all water PPMs are carried out within specified time frames and record keeping is of the highest standard.
- e) Ensure all logbooks and associated records are up to date and inspected on a regular basis
- f) Ensure that any works performed on the domestic water and closed water systems are performed in a safe manner in accordance with the UofG Legionella policy.
- g) Co-operate, in full, with internal and external water management audits
- h) Monitor the training requirements for themselves and those within their teams in relation to legionella awareness and recognised control measures
- i) Escalate any non-compliant issues, including positive legionella sample results immediately to the Contracted Appointed Person (Water)
- j) Attend updated management training at least every three years or sooner if determined by training needs analysis and in accordance with Water Systems

Standard Operating Procedure PR/SOP/Water V1.0 2020 Section 4.6
Competency and as advised through Ingenium as part of employee Performance
Development Records PDR

- k) Ensure all legionella positive samples are recorded on the UofG Accident Management System (AMS), uploading the initial sample report, detailing the remediations undertaken and then uploading any follow up sample reports.

4.2.6 **The Campus Technical Leads(s)** will fulfil the role of **contracted Deputy Campus Responsible Person (Water)** in the absence of the Campus Responsible Person. They are appointed in writing by the IFM Contract Duty Holder (Water). They shall ensure that they, staff under their line management and contractors under their instruction follow the detail as written within ACOP L8 Para 76, pgs 20/21

The post holder shall:

- l) Deputise for the Campus Responsible Person
- m) Represent the Campus Responsible Person at meetings or committee's when they are unable to attend themselves
- n) Fulfil all responsibilities noted as the responsibility of the Campus Responsible Person
- o) Attend updated management training at least every three years or sooner if determined by training needs analysis and in accordance with Water Systems Standard Operating Procedure PR/SOP/Water V1.0 2020 Section 4.6 Competency and as advised through Ingenium as part of employee Performance Development Records PDR

4.2.7 **The PFI Facilities Manager** will fulfil the role of **Phase 2 Accommodation Responsible Person**. The role holder should have the status and sufficient authority, competence & knowledge of the water systems to ensure that all operational procedures and precautionary measures are being carried out in a timely and effective manner. They are appointed in writing by the Contract Duty Holder (Water). They shall ensure that they, staff under their line management and contractors under their instruction follow the detail as written within ACOP L8 Para 76, pages 20/21

The post holder shall have similar responsibilities to the Campus Responsible Person(s), as noted in S3.25

4.2.8 **Competent Persons – Mechanical Operatives & Contractors**

In house mechanical engineering operatives and supervisors are all deemed to be Competent Persons (Water). They are appointed in writing by the Contract Duty Holder (Water).

The IFM contractor utilises both directly employed trade staff and external contractors to execute the tasks required within the Legionella Policy, SFG-20, ACOP L8 and HSG 274 Part 2.

Where external contractors are commissioned, their individual employees will not be appointed in writing by the University or the IFM contractor. Instead, the Contracted Responsible Person (Water) will ensure the contracting company are

appropriately qualified and competent. Evidence of membership and qualifications are required and shall be issued by the external contractors to the Contracted Responsible Person (Water)

Any Competent Person (Water) shall:

- a) Provide the skilled installation and/or maintenance of water risk systems.
- b) Conduct all their water system related tasks in accordance with legislation and agreed method statements
- c) Only use WRAS approved materials when working on water systems
- d) Employ their highest standard quality of work
- e) Maintain good hygiene practices with tools, equipment, components/accessories to be used on water systems thus preventing contamination of water systems and outlets
- f) Report any defects, suspicions or concerns regarding the design, condition, operation or performance of water systems that might increase the risk of waterborne pathogen proliferation.
- g) Ensure good personal hygiene (including clothing and foot ware) practices (reporting any recent communicable illness to Contracted Responsible Person (Water) before commencing any work on water systems.
- h) Attend updated training at least every three years or sooner if determined by training needs analysis and in accordance with Water Systems Standard Operating Procedure PR/SOP/Water V1.0 2020 Section 4.6 Competency and as advised through Ingenium as part of employee Performance Development Records PDR.

4.2.9 **Capital Project Managers**

Due to the age and condition of the estate the Capital Projects team will be constantly introducing new water systems or making amendments or additions to existing systems. As such they have responsibilities, to ensure that the systems remain in a compliant condition without risk of legionella contamination and are handed back with supporting documentation to evidence this. A non-exhaustive list of these responsibilities is as follows.

- a) To provide assurance that all significant legionella risks identified during refurbishment or development works are eliminated. Where elimination is not reasonably practicable, suitable and sufficient control measures are implemented.
- b) Review and circulate the current legionella risk assessment, to both identify potential risks and give consideration to the closure of any outstanding recommendations.
- c) To fully engage with the Responsible Persons and the UoG AP(Legionella) prior to instruction of any works likely to cause interruption and/or modification to domestic water systems.
- d) To utilise the IFM contractors incumbent water treatment contractor for any water sampling required from project conception to handover. Prior to any

sampling, communication should be sent out to the respective RP's.

- e) To utilise the IFM contractors incumbent water treatment contractor to conduct all chlorination's and or disinfections.
- f) To ensure that schematics are updated following any works and that this is undertaken by the IFM's incumbent legionella risk assessment consultant.
- g) The below is a basic bullet point list of the WSMG's agreed expectations within any project involving works to the domestic water system:
 - Representative sampling undertaken prior to project works commencing
 - Outlets flushed and temperatures monitored where systems stay live throughout project works. Details to be recorded in water management logbook.
 - All outlets to be thoroughly flushed on completion of works.
 - New installations to be chlorination dependent on system configuration. HWS to be pasteurised if chlorination is not viable.
 - Representative sampling to be undertaken.
 - Current LRA to be reviewed and amended accordingly.
 - All documentation to be made available at hand over stage.

5. Identification and Assessment of Risk

Each **IFM Campus Responsible Person** must ensure that a suitable and sufficient legionella assessment for their Campus is completed to identify and assess:

- the risk of legionella from work activities, water sources and ventilation systems.
- the risk of scalding to persons using the hot water systems; and
- that adequate documentation exists, which details the engineering design intent and the maintenance and operation procedures

The assessment will be reviewed at a frequency of between 2-3 years or sooner if there is a significant change in the buildings' water systems, or if the system is considered high risk, at which time necessary changes must be implemented. Whenever a risk is identified all reasonably practicable precautionary measures should be applied.

In accordance with the IFM contract, the IFM contractor will ensure that the Legionella Risk Assessment fully meets the requirements of BS8580 Water Quality Risk Assessments for Legionella and shall include:

- A record of schematic drawings for all water systems. The drawings should show:
 - the route of all hot and cold pipes (where visibly accessible) and the location of all outlets.
 - the layout and arrangement of all calorifiers, circulation pumps and destratification pumps (where installed).
 - the layout and arrangement of all cisterns, tanks, humidifiers and cooling towers (where installed).
 - all other water systems which may present a Legionella hazard e.g., irrigation

systems, water softeners, hose reels, vehicle washers etc.

- the location and arrangement of chemical dosing systems (where installed) e.g. chlorine dioxide.
 - the location of all dead legs and blind ends (where identified);
 - the location of sentinel taps (i.e. the first and last taps on each system);
 - room numbers where the system components are located, and
 - a legend explaining all terms and symbols.
- Measurements of the time taken to achieve recommended temperatures at hot and cold-water outlets i.e. the sentinel outlets.
 - Measurements of temperatures at all tanks, calorifiers and other systems which may present a legionellosis hazard.
 - Observations of the construction of tanks and systems and their condition.
 - Identification of little-used outlets and a programme for regular flushing.
 - Recommendations for the removal of dead legs and blind ends.
 - The condition of accessible pipe work should be visually checked.
 - Where possible, confirmation that any existing flexible hoses feeding taps, showers or WCs are WRAS approved.
 - Any identified compliance failures for remedial action with proposals for risk minimisation and control in order of priority, having considered cost, risk and difficulty.

The IFM contractor will keep an up-to-date list of little used outlets. The list should include the periods covering temporary closure of departments, flats and buildings. Little used outlets are defined as any outlet not used for a period of seven days or more. The above recommendations should be included in an agreed management programme for the minimisation of risks. This should be an action plan identifying resources and time scales.

The whole risk assessment programme should be reviewed at least annually by the Water Safety Management Committee, to record progress in implementing improvements and to ensure that the maintenance procedures are being undertaken properly and check that there have been no substantial changes (which may require another risk assessment to be undertaken).

All changes and correction of compliance failures of the water systems and functional content should be recorded within the water management logbook and evaluated accordingly.

Although not specifically included in the risk assessments, the IFM contractor should ensure records are kept for:

- The location and design of cooling coils in air handling units, and
- The location and design of fan coil units (with cooling coils).
- A proper maintenance regime should be in place for this type of plant.

6. System Temperature Requirements

The IFM contractor will ensure that systems comply with the following requirements:

- The inlet, outlet and surface water temperatures of cisterns and cold-water storage tanks should be less than 20°C. Tank temperatures should be checked during both hot and cold weather conditions.
- The temperature of calorifier and water heater contents should be maintained at 60°C. A minimum return temperature of 50°C should be achieved at all times to ensure Legionella bacteria do not multiply in the system.
- The testing of temperatures at sentinel outlets (the nearest and furthest hot and cold draw-off points on each system e.g. at sinks and hand basins, baths and showers) should be carried out every month. Hot water outlets should reach a steady 50°C minimum within one minute at a normal flow, and cold-water outlets should be less than 20°C within two minutes.
- Blended outlet temperatures of thermostatic mixing valves should be 43°C ±2°C to prevent persons being scalded. It should be proved that the hot inlet temperature is near to 60°C, or at least above 50°C.

7. Inspection and Maintenance

In accordance with **HSG 274 part 2 appendices 2.2**, a management scheme will be drawn from the identified needs of the risk assessment. Such needs will be based upon manufacturers recommendations, industry best practice and the requirements identified within SFG20. All required amends or deviations to the written scheme shall be approved by the WSMG prior to implementation implemented.

Should routine trending or analysis of the water system identify any biological presence, or should the on-going temperature monitoring indicate a loss of control then the actions and time frames identified in **HSG 274 Part 2 table 2.1 (Appendix 1)** are to be implemented in addition to the existing PPM regime, in agreement with instructions issued by WSMG.

The return to routine monitoring is only to be implemented on the advice of the WSMG following acceptance of remediation measures, proof of negative sampling and approval by the Duty Holder.

8. Flushing and Disinfection of Domestic Water Services

PD 855468:2015 provides guidance on water supply systems including the cleaning, flushing and disinfecting of domestic water systems to control microbiological growth and remove unwanted debris.

Procedures for flushing and disinfection were previously included in **BS 8558:2011** (Guide to the design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages), but have been expanded and are now included in PD 855468:2015.

The below extracts should be read, understood, and implemented.

PD 855468:2015 (5.3) Water systems temporarily out of use

If any part of the building service is temporarily out of use (period equal to or less than 30 days) or is infrequently used, and the system relies on a temperature regime for control of microbiological contaminants (including legionella) then the water system should be flushed after storage vessels have been emptied and filled with water direct from the incoming supply. Flushing should continue until the temperature at the outlet stabilises and is comparable to the incoming supply. Flushing should be carried out in a manner which minimises aerosol generation, e.g. removing shower heads prior to flushing, to reduce the risk of legionella transmission.

HWS that are to be left filled need not be heated, but they should be recirculated, temperatures maintained 20 °C, if possible, and regularly hygiene flushed. It is accepted that from May to September the risk of ambient temperatures exceeding 20°C is greater. If the temperature in an unoccupied building is above 20 °C, it is unlikely that it will be possible to maintain temperatures within water pipework below this temperature.

8.1. Infrequently Used Outlets

Where buildings/parts of buildings are not being used for excessive periods of time (**more than 1 week**) consideration should be given to implementing the following practices to limit the effects of bacteria growth within our water systems.

The daily monitoring of water systems will be in accordance with BS8558 with particular attention also given to PD 855468: Guide to the flushing and disinfection of services supplying water for domestic use within buildings and their curtilages.

Wherever possible, in addition to flushing, the variance in temperatures will be monitored to determine the frequency of outlet usage.

8.1.1 Isolation and Storage Reduction

- Where applicable, reduce the quantity of water in cold storage tanks.
- Turn off hot water calorifiers/dispensers and draw through hot water until water is a mains/tank temperature.
- Consult with vending machine operators for the requirement of shutdown/isolation/drain down etc. of their equipment e.g. hot and cold-water vending machines, ice makers, coffee machine etc.

8.1.2 Flushing routine for all infrequently used outlets

Where there is a prolonged period of building closure (more than 1 week), the following routine should be implemented:

- Wash hands, wear gloves and face mask
- Ensure that the system/outlet can drain in a safe and tidy manner into an appropriate drain if not plumbed for drainage
- Ensure that the purging of water from outlets does not create an unnecessary amount of aerosol at least no more than would be created when an outlet is operated normally
- Ensure that "splash-back" is minimised, where practicable, by placing a sponge or

another material capable of absorbing some of the force of the water against the surface of the appliance

- Review water schematics to identify the sentinel taps and record the water temperature at the tank (if applicable) and nearest and farthest outlets on both hot and cold outlets.
- Record temperature of tanks after 1, 3, 5 and 10 minutes at sentinel tap.
- If the temperatures exceed 20c report to your Technical Supervisors, flushing frequency to increase e.g. twice weekly or emptying of the tank and refilling to reduce the temperature.
- Review water schematics to identify all end of run water outlets and purge the hot, cold or the mixed water in turn for a minimum of 10 minutes or for a period of time necessary to draw water from the outlet at temperatures exhibited throughout the rest of the system.
- All other outlets to be purged individually for 5 minutes or for a period necessary to draw water from the outlet at temperatures exhibited throughout the rest of the system.
- Where showers need to be flushed, it is important to ensure that, where practicable, the showerhead is removed in order to reduce the potential of aerosol production
- Where the head is fixed, exposure to the aerosol produced must be minimised. One method that can be employed in this situation is the use of a transparent plastic bag, fixed around the showerhead, with one corner pierced to allow partial discharge of water
- All outlet locations, time & date of flushing to be recorded in water management folders.

8.1.3 Re-occupation of Buildings after a prolonged period of building closure

- Increase flushing of the water system to twice a week, for the 2 weeks prior to reoccupation of building.
- As near as practically possible of reoccupation, remove drain plug from hot water storage vessels and drain any murky water that might have settled till it runs clear, reinsert drain plug.
- Turn on hot water vessels and pasteurise hot water system for a period of 1 hour at 70°C (where systems can re- and draw through to outlets, on completion return setpoints back original settings for an occupied building e.g. 60°C+ • As near as practically possible of reoccupation, reinstate tanks levels back to their normal levels.
- As near as practically possible of reoccupation disinfect and descale spray outlets.
- Consult with vending machine operators for the requirement of reinstating of their equipment after a period of shutdown e.g. hot drinks and cold-water vending machines, ice makers, coffee machine etc.

8.2. Thermostatic Mixing Valves (TMV's)

- TMV's should only be installed where the risk assessment identifies a potential scalding risk, or where the location/room is designed to replicate hospital/surgery environment.
- The installation of TMV's shall be approved by the Water Safety Management Committee
- The pipe-work length from the TMV to the outlet shall be as short as possible (this must be less than two metres).
- All TMVs shall be fitted with strainers, (but only if a regular cleaning regime can be guaranteed) isolation valves and non-return valves.
- All TMVs shall be accessible (as far as reasonably practicable) and easy to clean, maintain and inspect.

9. Record Keeping

The **IFM Responsible Person** will ensure that:

- Adequate information and up to date records are kept available covering all of the tests, inspections, maintenance and remedial work undertaken on all systems. It is essential to be able to demonstrate that the risk assessment is being complied with, that any deficiencies have been corrected and adequate cross-referencing exists between the various documents.
- Suitable logbooks must be maintained to show that precautionary measures and treatments, monitoring results, service reports and remedial work is logged, dated and signed by the person who carried out the work.
- Every 3 months the logbooks are checked to ensure they are being completed properly and signed to this effect in the master logbook
- All legionella positive samples are recorded on the UofG Accident and incident reporting system, uploading the initial sample report, detailing the remediations undertaken and then uploading any follow up sample reports.

10. Sustainability Issues

There is a conflict between the Legionella requirements to flush outlets, WC's and drains regularly and the need to conserve water and energy (particularly with hot water). Care should be taken to minimise the amount of water being flushed away by allowing a reasonable flow from the taps etc. (not full flow) and by staying close by to turn off the outlets in a timely manner. Other considerations are to remove little used outlets completely to minimise the loss of water and heat, and the operative's time.

11. Further guidance

This Policy covers the basic requirements for the control of Legionella bacteria at the University of Greenwich.

For a fuller account the following legislation and code of practice should be referred to:

- **The Approved Code of Practice and Guidance, ACOP L8 "Legionnaires' disease – the control of Legionella bacteria in water systems"** and Technical Guidance HSG274, Parts 2 and 3.

- **WRAS (Water Regulations Advisory Scheme).**

While all water fittings and associated materials must by law conform with the Water Supply (Water Fittings) Regulations, there is no legal requirement to obtain WRAS Approval; it is simply the easiest and most reliable way of demonstrating compliance.

The Water Supply (Water Fittings) Regulations 1999, impose a legal duty not to install water fittings unless they satisfy the requirements specified in Regulation/Byelaw 4.

When installing a product which will carry or receive water from the public mains water supply in the UK, it is a criminal offence if it does not comply with the Water Supply (Water Fittings) Regulations.

These require that a water fitting should not cause waste, misuse, undue consumption or contamination of the water supply and must be 'of an appropriate quality and standard'.

The Regulations are typically in effect between the boundary of a property and the point of discharge.

NOTE: For future installations or refurbishments copper tail pipes should be used in preference to flexible hoses but, for refurbishments, this may entail replacement of the existing taps. Also, only PTFE tape may be used for sealing joints.

- **The Water Fittings Regulations**

The Water Supply (Water Fittings) Regulations (as amended 2021) play an important role in protecting public health, safeguarding water supplies and promoting the efficient use of water within premises across the UK.

These regulations set legal requirements for the design, installation, operation and maintenance of plumbing systems, water fittings and water-using appliances. They have a specific purpose to prevent misuse, waste, undue consumption or erroneous measurement of water and, most importantly, to prevent contamination of drinking water.

A legal duty is placed on all users, owners or occupiers and anyone who installs plumbing systems or water fittings and water-using appliances to ensure they are installed and used in accordance with these regulations and byelaws.

To ensure contractors working on the domestic water systems at the University of Greenwich have a working knowledge of these regulations, they must provide evidence that they are members of one of the schemes below:

- The Water Safe Approved Plumbers Scheme
- The Water Industry Approved Plumbers Scheme (WIAPS)
- The Competent Persons Scheme for Plumbers
- The Chartered Institute of Heating & Plumbing Engineers (CIPHE)

Note – Contractors shall be given 6 months to achieve membership or certification of the above if they do not already comply. Further information can be found here: <http://www.wras.co.uk>

- **Drinking Water Inspectorate**

The Drinking Water Inspectorate (DWI) is the competent authority for ensuring the Drinking Water Directive requirements are met in England & Wales. It provides independent reassurance that public water supplies in England & Wales are safe and drinking water quality is acceptable to consumers.

The local authority has a duty under the Regulations to conduct a risk assessment of all private water supplies within its area (except those supplies serving only a single untenanted domestic dwelling – unless they are requested to do so). The main purpose of the risk assessment is to identify any hazards that present a contamination risk to the supply and to compel a relevant person or persons to put in place appropriate measures to mitigate these risks by an appropriate action plan to a stated deadline, or where necessary, using their enforcement powers.

12. Document History

This document will be reviewed at least annually.

Details of previous reviews are as follows:

Review Date	Reviewer	Summary of Review
23/03/2022	Paul Lambert (EFD Safety & Compliance manager)	Changes made within S(3) and Chart 1.0 re. UofG roles and responsibilities Sodexo name removed and replaced with IFM contractor Text within S (1) amended EFD H & S manager detail inserted as UofG legionella competent person S (10.3) detail inserted re. required level of accreditation Reference made to Water Safety Management Committee Comments made by Sodexo SME acknowledged and inserted accordingly
17/11/2022	Paul Lambert (EFD Safety & Compliance manager)	S6.1.4 TMV's Inserted Acceptance sign off sheet added as Appendix (2)
01/09/2023	Paul Lambert (EFD Safety & Compliance manager)	Details inserted relating to Project Manager responsibilities and project handover expectations. (S10.3) CIPHE added to membership schemes, attendance of water fittings regulations removed
17/06/2024	Paul Lambert (EFD Safety & Compliance manager)	(S10.3) TAPS removed and replaced with WIAPS
28/08/2024	Vikki Wood AD H&S Services	Reclassified as Code of Practice. Transferred to new document format. Document reference number added.

Appendix (1) HSG 274 Part 2 Table 2.1 Checklist for hot & cold-water systems

When using temperature as a control regime, alongside routine monitoring and inspection, the checks in Table 2.1 should also be carried out and remedial action taken where necessary.

Service	Action to take	Frequency	Responsible for the task
Calorifiers	Inspect calorifier internally by removing the inspection hatch or using a boroscope and clean by draining the vessel. The frequency of inspection and cleaning should be subject to the findings and increased or decreased based on conditions recorded	Annually, or as indicated by the rate of fouling	
	Where there is no inspection hatch, purge any debris in the base of the calorifier to a suitable drain Collect the initial flush from the base of hot water heaters to inspect clarity, quantity of debris, and temperature	Annually, but may be increased as indicated by the risk assessment or result of inspection findings	
	Check calorifier flow temperatures (thermostat settings should modulate as close to 60 °C as practicable without going below 60 °C) Check calorifier return temperatures (not below 50 °C, in healthcare premises not below 55 °C)	Monthly	
Hot water services	For non-circulating systems: take temperatures at sentinel points (nearest outlet, furthest outlet and long branches to outlets) to confirm they are at a minimum of 50 °C within one minute (55 °C in healthcare premises)	Monthly	
	For circulating systems: take temperatures at return legs of principal loops (sentinel points) to confirm they are at a minimum of 50 °C (55 °C in healthcare premises). Temperature measurements may be taken on the surface of metallic pipework	Monthly	
	For circulating systems: take temperatures at return legs of subordinate loops, temperature measurements can be taken on the surface of pipes, but where this is not practicable, the temperature of water from the last outlet on each loop may be measured and this should be greater than 50 °C within one minute of running (55 °C in healthcare premises). If the temperature rise is slow, it should be confirmed that the outlet is on a long leg and not that the flow and return has failed in that local area	Quarterly (ideally on a rolling monthly rota)	
	All HWS systems: take temperatures at a representative selection of other points (intermediate outlets of single pipe systems and tertiary loops in circulating systems) to confirm they are at a minimum of 50 °C (55 °C in healthcare premises) to create a temperature profile of the whole system over a defined time period	Representative selection of other sentinel outlets considered on a rotational basis to ensure whole system is reaching satisfactory temperatures for legionella control	
POU water heaters (max 15 litres)	Check water temperatures to confirm the heater operates at 50–60 °C (55 °C in healthcare premises) or check the installation has a high turnover	Monthly–six monthly, or as indicated by the risk assessment	
Combination water heaters	Inspect the integral cold water header tanks as part of the cold-water storage tank inspection regime, clean and disinfect as necessary. If evidence shows that the unit regularly overflows hot water into the integral cold water header tank, instigate a temperature monitoring regime to determine the frequency and	Annually	

	take precautionary measures as determined by the findings of this monitoring regime		
Combination water heaters	Check water temperatures at an outlet to confirm the heater operates at 50–60 °C	Monthly	
Cold water tanks	Inspect cold water storage tanks and carry out remedial work where necessary	Annually	
Cold water tanks	Check the tank water temperature remote from the ball valve and the incoming mains temperature. Record the maximum temperatures of the stored and supply water recorded by fixed maximum/minimum thermometers, where fitted	Annually (Summer) or as indicated by the temperature profiling	
Cold water services	Check temperatures at sentinel taps (typically those nearest to and furthest from the cold tank but may also include other key locations on long branches to zones or floor levels). These outlets should be below 20 °C within two minutes of running the cold tap. To identify any local heat gain, which might not be apparent after one minute, observe the thermometer reading during flushing	Monthly	
Cold water services	Take temperatures at a representative selection of other points to confirm they are below 20 °C to create a temperature profile of the whole system over a defined time period. Peak temperatures or any temperatures that are slow to fall should be an indicator of a localised problem	Representative selection of other sentinel outlets considered on a rotational basis to ensure the whole system is reaching satisfactory temperatures for legionella control	
Cold water services	Check thermal insulation to ensure it is intact and consider weatherproofing where components are exposed to the outdoor environment	Annually	
Showers and spray taps	Dismantle, clean and descale removable parts, heads, inserts and hoses, where fitted	Quarterly or as indicated by the rate of fouling or other risk factors, e.g. areas with high risk patients	
POU filters	Record the service start date and lifespan or end date and replace filters as recommended by the manufacturer (0.2 µm membrane POU filters should be used primarily as a temporary control measure while a permanent safe engineering solution is developed, although long-term use of such filters may be needed in some healthcare situations)	According to manufacturer's guidelines	
Base exchange softeners	Visually check the salt levels and top up salt, if required. Undertake a hardness check to confirm operation of the softener	Weekly, but depends on the size of the vessel and the rate of salt consumption	
Base exchange softeners	Service and disinfect	Annually, or according to manufacturer's guidelines	
Multiple use filters	Backwash and regenerate as specified by the manufacturer	According to manufacturer's guidelines	
Infrequently used outlets	Consideration should be given to removing infrequently used showers, taps and any associated equipment that uses water. If removed, any redundant supply pipework should be cut back as far as possible to a common supply (e.g. to the recirculating pipework or the pipework supplying a more frequently used upstream fitting) but preferably by removing the feeding 'T' Infrequently used equipment within a water system (i.e. not used for a period equal to or greater than seven days) should be included on the flushing regime Flush the outlets until	Weekly, or as indicated by the risk assessment	

	<p>the temperature at the outlet stabilises and is comparable to supply water and purge to drain</p> <p>Regularly use the outlets to minimise the risk from microbial growth in the peripheral parts of the water system, sustain and log this procedure once started</p> <p>For high risk populations, e.g. healthcare and care homes, more frequent flushing may be required as indicated by the risk assessment</p>		
TMVs	<p>Risk-assess whether the TMV fitting is required, and if not, remove</p> <p>Where needed, inspect, clean, descale and disinfect any strainers or filters associated with TMVs</p> <p>To maintain protection against scald risk, TMVs require regular routine maintenance carried out by competent persons in accordance with the manufacturer's instructions. There is further information in paragraphs 2.152– 2.168</p>	<p>Annually or on a frequency defined by the risk assessment, taking account of any manufacturer's recommendations</p>	
Expansion vessels	<p>Where practical, flush through and purge to drain. Bladders should be changed according to the manufacturer's guidelines or as indicated by the risk assessment</p>	<p>Monthly–six monthly, as indicated by the risk assessment</p>	

Appendix (2) Acceptance of Legionella Code of Practice

FAO: Estates and Facilities Directorate

Acceptance of Legionella Code of Practice

I have received a copy of UofG's Legionella Code of Practice and will comply with all requirements within.

This document will be forwarded to colleagues within the company/department as appropriate.

Please tick the box below that is most applicable to your role at UoG.

- I will ensure all my directly employed operatives and sub-contractors engaged on domestic water system installations; alterations or extensions to existing systems have a working knowledge of the Water Supply (Water Fittings) Regulations (as amended 2021) and are a member of an approved scheme as detailed in (S) 9.3 of this policy.
- On all projects where I am appointed as a Project Manager, I will ensure all contractors engaged on domestic water system installations; alterations or extensions to existing systems have a working knowledge of the Water Supply (Water Fittings) Regulations (as amended 2021) and are a member of an approved scheme as detailed in (S) 9.3 of this policy.
- I have understood the requirements referenced within this code of practice. However, I do not undertake works to the domestic water systems nor design such works and am signing purely to evidence receipt.

Signed _____

Name (Print) _____

Company/Department _____

Date _____