The Newcastle upon Tyne Hospitals NHS Foundation Trust

The Management and Control Of Legionellosis including Legionnaires Disease Policy

Effective: January 2009 Review: March 2012

1. Policy Objective

It is The Newcastle upon Tyne Hospitals NHS Foundation Trust Management (hereafter referred to as The Trust) Policy to manage the operation and maintenance of its Domestic / Process Water and Air systems in line with current best practice, complying with all current guidelines and legislation relating to the management and control of Legionellosis.

Measures to be taken to attain this objective include:

1.1. The appropriate selection, design, installation and maintenance of plant, equipment and services.

1.2. The appointment and suitable training of "Responsible Persons" competent to:

- Liaise with all other organisations that supply The Trust with services pertaining to Legionellosis Management and Control, whether accommodation, facilities management (PFI), water treatment, consultancy etc.
- Identify and assess the risk of Legionellosis prior to and resulting from work activities.
- Develop, implement and maintain appropriate and suitable Management Systems, Personnel Training Programmes, plant treatment procedures and contingency plans.
- Develop and maintain adequate records in order to demonstrate compliance with best practice and fulfil legal obligations.
- Ensure compliance with this Policy.

1.3. The regular monitoring of all implemented Management Systems, Training Programmes and treatment procedures, to establish and ensure their continuing efficacy and legislation compliance.

2. General Principles

2.1 Background

Legionnaire's disease is a potentially fatal form of pneumonia which can affect anybody but which particularly affects those who are susceptible because of age, illness, immunosuppression, smoking etc. It is caused by the bacterium Legionella Pneumophila and related bacteria. The collective term used to cover the group of diseases caused by Legionella bacteria is Legionellosis

It is normally contracted by inhaling Legionella bacteria, either in tiny droplets of water (aerosols), or in droplet nuclei (particles left after water has evaporated) contaminated with Legionella, deep into the lungs. Person to person spread of the disease has not been documented.

Initial symptoms of Legionnaires disease include high fever, chills, headache and muscle pain. Patients may develop a dry cough and most suffer difficulty with breathing.

The incubation period is between 2 – 10 days. Not everyone exposed will develop symptoms of the disease and those that do not develop the "full blown" disease may only present with a mild flu-like infection.

Infection with Legionella bacteria can be fatal in 12% of reported cases (200-250 cases per year in the UK). This rate can be higher in a more susceptible population, for example, immunosuppressed patients of those with underlying diseases; for example, men appear more susceptible that women, as do those over 45 years of age, smokers, alcoholics, diabetics and those with cancer or chronic respiratory or kidney disease.

3. Introduction

3.1 Management Policy Statement and Aim

The Trust recognises and accepts its responsibility under the Health and Safety at Work etc Act 1974 and the Control of Substances Hazardous to Health Regulations 2002, to:

"Take all reasonable precautions to prevent or control the potential of Legionellosis to residents, staff and other persons working at or using its premises."

This Policy Applies to:

- Cold Water Systems: Including Mains (boosted or otherwise) or local tanked fed supplies.
- Domestic and Emergency Showers: Including tank fed showers; Mains fed showers with direct electrical heaters, emergency dowsing showers and eye wash stations.
- Domestic Hot Water Systems: Including all direct and indirect calorifiers (primary heating coil, electric immersion heater or otherwise), cistern-type water heaters and instant water heaters (plate heat exchanges, Angellery, electric or otherwise).
- Ancillary Plant: Process and any other plant which is liable to encourage Legionella growth and/or create an aerosol, such as irrigation systems.
- Air Conditioning Plant: Ducted systems which include chiller batteries and/or humidification and excludes local "split units".

- All new water and air handling systems shall be designed and installed in accordance with current legislation and guidelines as to minimise, avoid or prevent the risk of Legionellosis.

- All existing water and air handling systems shall be operated and maintained / replaced in such a way as to minimise or control the risk of Legionellosis.

3.2 Undertakings

The Trust recognises its responsibility to implement in full, all requirements described in current relevant guidelines and legislation relating to the management and control of Legionellosis including Legionnaires ' disease, particularly, the Health and Safety Commission's Approved Code of Practice – L8 and current and relevant Health Technical Memoranda such as HTM 04-01. The Control of Legionella, Hygiene "Safe" Hot Water, Cold Water and Drinking Water Systems. Parts A & B.

The Trust will undertake to:

- Appoint a Trust Responsible Person and site specific Deputy Responsible Persons to enable the implementation of the requirements of this Policy.

- Identify and assess sources of risk from all water and air systems found within all the buildings within the Estate.

- Prepare a "Written Scheme" for preventing, reducing or controlling the risk.

- Implement and manage precautions.

- Keep records of the precautions implemented of the premises within the Trust's control.

3.3 The Estate

For the purposes of this Policy, the Estate comprises all the premises currently occupied, owned and maintained by the Trust (under a full maintenance lease or otherwise)

The Trust also leases premises on the Royal Victoria Infirmary and Freeman Road Hospital sites that are not maintained by the estates department. The IFM Company have a responsibility to maintain systems, monitor and record information to safeguard patients, staff and visitors from Legionella risks. Information must be forwarded to the Trust for viewing, comments and actions as necessary. The records are held by the Trust's Performance Monitoring Team with a further copy held by Infection Prevention and Control Team.

4. Legislation and Guidance

The following non-exhaustive legislative list of documents are utilised by the Trust as guidance and reference source throughout this policy:

- Health Technical Memorandum 04-01 : Water Systems : The Control of Legionella, Hygiene, "Safe" Hot Water, Cold Water and Drinking Water Systems. Part A : Design, Installation and Testing. Part B: Operational Management.
- Health Technical Memorandum 03-01: Heating and Ventilation of Healthcare Premises. Part A : Design and Validation. Part B : Operational.
- Health and Safety at Work etc Act 1974.
- The Management of Health and Safety at Work Regulations 1992.
- Control of Substances Hazardous to Health (COSHH) Regulations 2002.
- Public Health (Infectious Diseases) Regulations 1988.
- Water Supply (Water Quality) Regulations 2000.
- Food Safety Act 1990
- The Health and Safety Commission (2000) Approved Code of Practice L8.
- The Water Supply (Water Fittings) Regulations 1999.
- British Standards
- Health Guidance Note: "Safe" hot water and surface temperatures 1998.
- National Health Service Model Engineering Specifications D08 Thermostatic Mixing Valves (Healthcare Premises).
- The Health Act 2006 – Code of Practice for the Prevention and Control of Healthcare Associated Infections.
- HSE: Control of Legionella Bacteria in Water System Audit Check Lists

5. General Responsibilities

5.1 Employers Duties

The Trust, as employers, have a general duty under The Health and Safety at Work etc Act 1974 to ensure so far as is reasonably practicable, the health, safety and welfare of all their employees.

HSWA 2(1) requires employers to:

- provide and maintain plant and systems of work that are safe and free from health risks

- make arrangements for ensuring safety and the avoidance of health risks in connection with the use, handling, storage and transportation of articles and substances (HSWA 2(2)b)

- provide such information, instruction, training and supervision to ensure the health and safety at work of their employees [HSWA 2(2)c]

- provide a safe working environment [HSWA 2(2)e]

- those in control of premises must ensure that they are safe and that any plan or substance does not endanger health of all persons at work and the general public (HSWA 4)

HSWA 3(1) requires that:

Employers have a duty to carry out their work in such a way that persons not in their employment who may be affected by it are not exposed to risk to their health and safety. This provides protection to anyone (Patients or Visitors) who might be affected by work activities as well as to the employees of other employers concerned with the work.

Employees have a duty under Section 7 of the Health and Safety at Work Act etc. 1974 to take reasonable care for their own health and safety and of that of others who may be affected by their acts or omissions at work.

Towards this end, employees should use correctly all work items provided by their employers, in accordance with their training and their instructions they receive to enable them to use the items safely.

Employees' duties under Section 7 also include co-operating with their employer to enable the employer to comply with statutory duties for health and safety.

Employers or those they appoint (e.g. under Regulation 7) to assist them with health and safety matters therefore need to be informed without delay of any work situation which might present a serious and imminent danger. The danger could be to the employee concerned or, if it results from the employee's work, to others.

Employees should also notify any shortcomings in the health and safety arrangements, even when no immediate danger exists, so that employers in pursuit of their duties under the HSWA and other statutory provisions can take such remedial action as may be needed.

5.2 Personnel Training

Relevant Trust Staff will be appropriately trained to carry out their duties.

The training should cover relevant topics such as:

- General knowledge on the Management and Control of Legionellosis
- Legal responsibilities
- The Policy
- COSHH
- On-going monitoring
- On-going maintenance
- Disinfection procedures
- On-going inspections
- Logging required
- Emergency procedures

Staff with specific responsibilities for actions to control the "Risk" shall be given additional training in how to carry out those particular tasks. In addition, persons who deputise should receive equivalent training to the person whose function they are covering. The training required will vary from individual to individual according to their background and responsibilities.

Individual training records shall be kept by the estates department for staff with specific responsibilities.

The Deputy Responsible Person, with specific site responsibilities shall also assess the training status of all contractors who operate on the Trust buildings within their control. Only competent Contractors will be employed by the Trust to work on water systems; they shall be authorised by the Deputy Responsible Person. Where the level of training of these persons is assessed to be lower than required, the Deputy Responsible Person with Site specific responsibilities, shall advise the contractor of any further training requirements.

In premises Leased by the Trust where the estates department do not undertake maintenance regimes the IFM Company provide their own Responsible Person(s) in accordance with current legislation / guidelines to assess the training requirements of their own staff and contractors who are appointed by the IFM Company to carryout works on the systems.

6. Delegated Responsibility

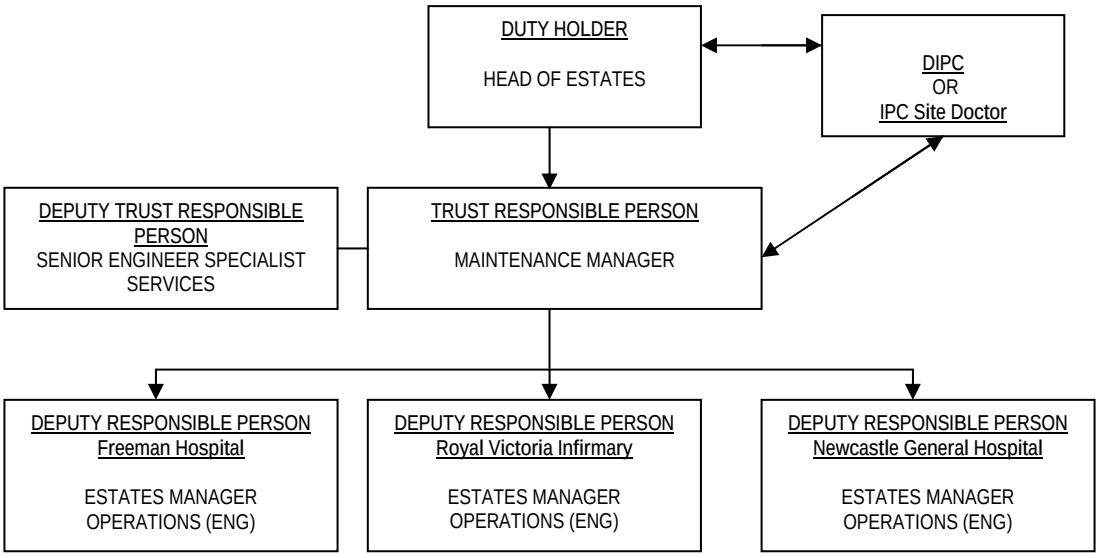
6.1 General

- It is the responsibility of any person employed by or on behalf of the Trust (in whatsoever capacity) to comply with the requirements of this Policy. Advice on the requirements of the Policy can be obtained at any time from the Duty Holder.

- The person primarily responsible for all matters relating to Legionellosis Management & Control, within the scope of this Policy, is the Duty Holder, and shall liaise with the Director of Infection Prevention and Control (DIPC) or relevant Infection Prevention and Control Site Doctor (IPC Site Doctor), on all water quality matters.

- However, the operational responsibility is delegated to the Trust Responsible Person. The Management Structure for the

Management & Control of Legionella Bacteria" across the Trust is described in the hierarchy schematic below:



- Trust Responsible Person and their Deputies are those with delegated specific actions, tasks and responsibilities under the Legionellosis Management & Control Programme.

- Trust Responsible Person and their Deputies are to be made aware of their responsibilities under this Policy, in writing.

- All contractors including PFI involved in the Legionellosis Management & Control Programme will need to demonstrate and provide evidence of training and competence appropriate to their activities.

- Where there is any change in the personnel listed in the Trust Responsible Person section of this Policy, the new employee must be made aware in writing of the type and extent of their responsibility in relation to the site Legionellosis Management & Control and receive appropriate training and achieved competence where necessary.

6.2 Duty Holder (Head of Estates) shall

- Have overall responsibility for all aspects of Legionellosis Management & Control within The Trust.

- Nominate, in writing, a "Legionella Risk Management Team" whose duties will be to advise on and monitor the implementation and efficacy of all Legionellosis Management & Control Programmes across all sites constituting the Trust Estate. The Team should consist of the Trust Responsible Person and their Deputies, the Duty Holder and the Trust Legionellosis Management & Control Consultants.

- Appoint, in writing, the Trust Responsible Person and their Deputies.

- Authorise the ratification of this Policy Document detailing the scope of Legionellosis Management & Control within The Trust.

6.3 Trust Responsible Person (Maintenance Manager) shall

- Have overall responsibility for the implementation of the Legionellosis Management & Control Programmes, across the Trust.

- Supervise all Deputy Responsible Persons.

- Ensure that the delegated Deputy Responsible Persons have received the necessary training and achieved competence as it affects their duties.

- Have overall responsibility, via the Deputy Responsible Persons, for auditing the Legionellosis Management & Control Programmes across the Trust, and reporting all findings to the Legionellosis Management & Control Steering Committee.

- Advise the Infection Prevention and Control Committee, via the Legionella Risk Management Team, on all matters relating to control of Legionellosis within the Trust. The Trust Responsible Person shall liaise with the IFM Provider to ensure Legionella records are maintained and audited. IFM Operational performance shall be monitored by the Trust's Performance Team.

- Advise the Deputy Responsible Persons on all matters relating to the Management & Control of Legionellosis and ensure that they are informed of all changes, or proposed changes, in the legislation/recommendations relating to Legionellosis which may affect the Trust, in general, and the buildings under their control specifically.

6.4 Deputy Responsible Person (Estates Manager/Senior Engineer) shall

- Have overall responsibility for the Management of the Legionellosis Management & Control Programme, across the buildings under their control.

- Have responsibility for the Operational Management Legionellosis Management & Control PPM Programme, across the buildings under their control

- Carry out suitable and sufficient Risk Assessments on all buildings under their control and review these assessments on, at least, a two yearly basis or when there have been major alterations to a system.

- Consider each Risk Assessment Report and ensure the design, arrangement, implementation and management of all necessary Remedial Works required to allow the systems to comply with the

current and relevant guidelines and legislation, and to ensure minimisation or control of the prevailing risk.

- Consider the Risk Assessment Reports, implement and monitor action plans and ensure the design, arrangement, implementation and management of all Pre-Planned Maintenance Programmes required to allow the systems to comply with the current and relevant guidelines and legislation, and to ensure minimisation or control of the prevailing risk. Reports are to be undertaken by an independent specialist via a Risk Assessment and Audit tool.

- Where necessary, carry out a Tender Process and select suitable Water Treatment/Hygiene Contractors or Consultants for the provision of services pertaining to Legionellosis Management & Control for buildings under their control.

- Implement, maintain and manage a Log Book system which operates a “Defect Log” retaining all data for five years.

- Consider the Log Book and Defect Log, pertaining to each building, and ensure the design, arrangement, implementation and management of all Pre-Planned Maintenance Programmes required to allow the systems to comply with the current and relevant guidelines and legislation, and to ensure minimisation or control of the prevailing risk.

- Ensure that all new or significantly altered water systems are properly Risk Assessed and ensure that, where appropriate, such systems are included in the Legionellosis Management & Control Programme.

- Advise the Trust Responsible Person, via a Quarterly Report of the status of the Legionellosis Management & Control Programme within the buildings under their control.

- Regularly audit the locally implemented Legionellosis Management & Control Programme reporting results / findings to the Trust Legionella Risk Management Group

- Assess the training needs for training of staff involved in the Legionellosis Management & Control Programme and liaise between suitable training establishments, Consultants to provide approved Training Courses.

- Ensure training records are kept up to date.

Note

In premises Leased by the Trust where the estates department do not undertake maintenance regimes the IFM Company provide their own Responsible Person(s) in accordance with current legislation / guidelines to have overall responsibility to undertake responsibilities as set out above in the above points inclusive.

6.5 Legionella Risk Management Group shall

- Ratify all appointments of positions of “Responsibility”.
- Ratify this Policy including all other relevant Documentation, Works Specifications, PPM Programmes, etc.
- Conduct a biennial review of this Policy and issue amendments as required by the review (see Review date on front cover).
- Consider the efficacy of all contractors commissioned on Legionellosis Management & Control related projects.
- Monitoring the efficacy of all training Programmes implemented for associated staff.
- Maintain a uniform Legionellosis Management & Control Programme across the Trust.
- Provide a forum of discussion and sharing of information pertaining to Legionellosis Management & Control across the Trust.
- Assist the Director of Prevention and Control of Infection to implement all necessary Contingency Procedures.
- Put in place arrangements for reporting an outbreak or suspected outbreak of Legionella.

The Group should include a representative from as many related departments as possible. It is usual that the team should meet at intervals necessary to reflect the work load in-hand, but a 6 monthly interval would be considered to be appropriate once the “implementation” stages of the Legionellosis Management & Control Programme have been completed.

6.6 Monitoring, Auditing and Reviewing

The Trust have established a Performance Monitoring Team, headed by the Estates Corporate Services Manager. The responsibility of the Team is to report directly to the Head of Estates and Facilities on quality procedures regulating facility services across the Trust. Records relating to Legionella monitoring, auditing and reviewing, as described in this document, will be made available for inspection on request.

7. Legionella Control

7.1 Primary Method of Legionella Control

The primary method of Legionella control, that The Trust, employs to manage and control the risk of bacterial growth and proliferation, is that of "maintained temperature regime". This is achieved by keeping domestic cold

water at temperatures of less than ≤20^{o}C and hot water at temperatures of ≥ 60^{o}C and ≥ 50^{o}C for the stored and distribution services respectively. It is essential to maintain all systems in a clean and well used state at all times

During specific circumstances, when "control temperature regimes" or the biocide dosing is shown, by the various PPM Programme Monitoring Tasks, to be failing, the water quality shall be maintained by ensuring the shot-dosing of a suitable disinfecting agent, the levels of which must be maintained within the recommended limits for achieving disinfection as specified within the current edition of BS6700 and L8 – The Control of Legionella bacteria in water systems – Approved Code of Practice & Guidance 2001.

On various sites, the Trust, in addition to "controlled temperature regimes, uses ongoing dosing of a biocide (chlorine dioxide) which is injected into the system at specific locations.

The areas currently covered are:

RVI: Dental Hospital, Leazes Wing (in clinical areas)

FH: All Ward Blocks and PFI Site

NGH: Clinical Areas

Proposed future areas to be considered:

RVI: Claremont Wing and PFI Site

8. System/Plant Design, Installation and Maintenance

Numerous water and air handling systems / plant are installed throughout the Trust's premises which can affect the water supply or the atmosphere to which they are supplying. Essentially all systems have to be designed, installed, maintained and monitored in accordance with current guidelines. The non-exhaustive list below outlines the key considerations that should be undertaken, however reference should always be made to current legislation and guidance:

8.1 General Design and Installation Considerations

- The systems shall be carefully designed to eliminate or minimise aerosol production and excessive water retention. They must also be designed to be readily drained and cleaned.

- No materials used in construction shall include those that are known to harbour or provide nutrient for bacteria. Any materials that come into contact with the water in a hot and cold water installation shall comply with the requirements of the Water Supply (Water Fittings) Regulations 1999.

- All systems shall be frequently used or suitably flushed to simulate the necessary usage frequency, in order to avoid stagnant water

which will increase the potential of bacterial growth and proliferation. The usage frequency shall be regularly monitored and reported upon.

- All plant and distribution pipe-work (where accessible) shall be clearly labelled.

8.2 Cold Water Storage Tanks

- Cold water storage tanks shall be constructed from non- deleterious materials which must be WRc approved.

- Cold water storage tanks shall be designed in accordance with BS6700 (glass-reinforced plastic (GRP) tanks should comply with BS7491 Parts 1, 2 and 3), installed in appropriate and suitable locations to allow easy and safe access to facilitate inspection and maintenance.

- Sectional cold water storage tanks shall be designed with external assembly flanges and self-draining profiles, since this arrangement facilitates easy cleaning of internal surfaces.

- Externally located cold water storage tanks must be suitably protected from environmental conditions.

- Cold water storage tanks must be protected from the ingress of light, insects and birds.

- Cold water storage tanks must be sized and arranged so as to minimise retention time of stored water (24hrs maximum), and therefore to increase the rate of stored water exchange.

- All associated pipe work and valves must be adequately insulated and clearly labelled to identify their purpose.

- The use of delayed-action ball valves shall be fitted (where practicable) in order to help avoid stagnation of water.

- Various arrangements of pumping systems are indicated in BS6700 : 2006. Where booster pumps are to be installed, a break cistern will be required between the mains supply pipe and the pumps. This is required in order to comply with the Water Supply (Water Fittings) Regulations 1999 with regard to prevention of backflow. Control of the pump(s) should be fully automatic in operation and controlled by pressure sensors. Where two or more pumps are installed, the design flow should be achieved with one pump stationary (or out of service). Automatic control should be provided to cyclically and sequentially control all pumps to ensure that each is regularly brought into service.

- Cold water storage tanks shall be maintained in good condition, free from excessive corrosion, sludge deposition, scale deposition.

- Stored water shall be maintained at a temperature of ≤20oC.
  Note – the Water Authority are allowed to supply water up to 250C, in which case the Trust are to implement measures in order to maintain stored water temperature at below 200C

- Cold water storage tanks shall be subjected to periodic monitoring and recording of conditions to include:

    - Monthly temperature monitoring.

    - Quarterly general physical inspections.

- Cold water storage tanks shall be subjected to a clean and disinfection, when the results of the monitoring indicate the need, or at least annually.

8.3 Hot Water Calorifiers

- Calorifiers shall be installed in appropriate and suitable locations to allow easy and safe access to facilitate inspection and maintenance.

- Where more than one Calorifier or heating device is used, they shall be connected in parallel, taking care to ensure that the flow can be balanced so that the water temperature from all the Calorifiers exceeds 60°C at all times.

- The combined storage capacity and heater output must be sufficient to ensure that the outflow temperature, at continuous design flow (at least 20 minutes) from calorifiers or other heaters, should not be less than 60°C. This applies to both circulating and non-circulating hot water systems.

- Calorifiers shall be designed, installed and maintained in accordance with the relevant HTM.

- Calorifiers should be fitted with a de-stratification pump, in order to avoid temperature stratification of the stored water. Some semi-storage/high-efficiency Calorifiers are supplied with an integral pump that circulates water in the Calorifier. De-stratification pumps shall not be fitted to this type of unit.

- Calorifiers shall be maintained at the following temperature profiles at all times:

    - "Stored" and "Flow" at ≥60.0^{o}C.
    - "Return" and "Distribution" at ≥50oC.

  Where a building is to remain unoccupied, the Calorifier should be emptied and must be pasteurised before being allowed back 'on-line.

- Calorifiers shall be subjected to regular check for “Flow” and “Return” temperature. This can be carried out manually or remotely via a BMS system and alarmed if temperatures are not maintained

- Calorifiers shall be subjected to regular inspections for water quality, Calorifier physical condition, temperature and bacterial activity.

- Calorifiers shall be subjected to a regular blow-down and flush via the drain point

- Cleaning, flushing and pasteurisation must be carried out in the event of major modifications or after a period out of service, before Calorifier is returned to service. Pasteurisation must be carried out when the stored water temperature falls below 45oC for more than 1 hour before the Calorifier is returned to service.

8.4 Hot Water and Cold Water Distribution Systems

- The design and installation of the hot and cold water distribution system shall comply with the Water Supply (Water Fittings) Regulations 1999 and BS6700.

- The design of the pipework shall ensure that there is no possibility of a cross-connection between installations conveying potable water and an installation containing non-potable water or water supplied from a private source (untreated). There shall be no possibility of backflow towards the source of supply from any tank, cistern or appliance, whether by back siphonage or otherwise.

- All cold distribution pipework, mains and tank down feeds shall be located, as far as is practicable, to minimise heat gains from their environment. Pipe work shall not be routed through hot ducts or run adjacent to heat sources, such as radiators.

- All pipe work shall be insulated, except for any exposed final connections to facilities, and should be arranged to eliminate or minimise deadlegs.

- As far as possible, the objective shall be to design the cold water systems to ensure that the inlet, outlet and surface water temperatures of cold water storage tanks are not greater than 2°C above that measured at the main water meter. Also, at cold water draw-off points, a temperature of not greater than 2°C above the temperature measured in the source cold water storage tanks shall be reached within one minute.

- Stagnation shall be avoided. Hot and cold water services shall be sized to provide sufficient flow and draw-off points to promote turnover of water.

- Central “common blending” systems shall not be used, since the length of distribution pipe work containing water in the temperature

range that supports bacterial growth and proliferation would far exceed the maximum permissible lengths mentioned above.

- Water temperatures to both CWS and HWS outlets shall be measured annually at a representative number of outlets on a rotational basis. Sentinel outlets shall be checked at monthly intervals. Temperatures shall be measured after two minutes for the CWS and one minute for the HWS at full flow and be maintained at <20°C and >50oC respectively. Records are to be maintained and kept on file in the Estates department for the Trust properties. Records must also be maintained and kept in buildings currently operated by IFM provider. These records are to be made available on request from the Trust

- Temperature monitoring shall be supported with microbiological sampling when considered necessary.

- Scalding control in high risk areas shall be achieved by the installation of Thermostatic Mixing Valves (TMVs) compliant with:

    - The Health Guidance Note "Safe" hot water and surface Temperatures – 1998; and

    - The National Health Service Model engineering specifications D08 Thermostatic mixing valves (Healthcare Premises). All such outlets accessible by the user/patient/visitor and staffs shall be maintained as per the following table:

Area/Activity	Recommended temperature °C
Staff bases, ward and consulting rooms, etc. basins. In-patient, out-patient hand-wash basins.	41
General areas to which staff and patients may have access.	41
Paediatric baths	40 To allow for the cold paediatric bath/ sink. NB: Paediatric Nurses should always use a thermometer.
General baths	43
Showers	41
Assisted baths	46 To allow for the cold mass of bath. NB: Paediatric Nurses should always use a thermometer before immersing patients.
Hair-wash facilities	41
Bidets	38
All sinks, kitchens, pantries, slop sinks, etc.	55 Minimum required for food hygiene and decontamination purposes.
Office, staff only access areas hand-wash basins.	43

- Scalding control in non-patient areas shall achieved by installing general “Warning! Hot Water” notices in public areas to indicate and warn users of the potential of scalding. Where the risk of scalding has been assessed and considered to be high, the installation of thermostatic mixing valves will be considered.

- All TMVs fitted to baths and showers must be inspected and subjected to a fail-safe test on a six-monthly basis (carried out as described in the manufacturer’s instructions).

- All TMVs shall be subjected to a strip-down, cleaning and disinfection on a six-monthly basis or sooner as indicated by the results of the inspection programme. Trust records are to be maintained and kept in the Estates Department. Records must also be maintained and kept in buildings currently operated by IFM provider. These records are to be made available on request from the Trust

- Designated drinking water systems and outlets water temperatures shall be measured at monthly intervals. Temperatures must be aimed to be maintained within +/- 2oC from incoming mains water temperature. Temperature monitoring must be supported with microbiological sampling for the presence of E.coli and/or presumptive coliforms (from representative locations). Microbiological testing regime is to be advised by the Infection Prevention and Control Department.

- Where a building or sections of the system remain unused for long periods of time, steps shall be taken as follows:

    - Flush **all** water facilities (including toilet and urinal cisterns) on a twice-weekly cycle.

    - If the facilities within a building are to remain unused for a prolonged period (more than one month), then the system shall be drained down (including all vessels) and cleaned and disinfected (any calorifiers are to be pasteurised) prior to being allowed back ‘on-line.

    - Consideration shall be given to isolating the unused sections from the system and possibly removing pipe-work and fixtures completely to avoid "dead-legs".

- Fire hose-reels – it is the Trust’s policy to consider the removal of such equipment after full consultation with the Trusts Fire Officer. The purpose of their removal is to minimise deadlegs.

- Regular checking of the hose-reels, remaining, for operational integrity, shall be maintained. This task, however, shall be carried out with due care and attention – ensuring that the creation of aerosols is maintained as practicably low as possible. Remaining hose reels are to be flushed monthly.

- Where the installation of RPZ or double check valves is not practicable, each unit shall be subjected to a weekly flushing regime in order to minimise stagnation and the potential for increased bacterial proliferation

8.5 Showers and Thermostatic Mixing Valves (TMVs)

- All showers (shower-heads and associated hoses) shall be maintained in a good and clean condition and free from excessive scale and dirt deposition.

- In all patient areas, all showers shall be fed via TMVs which shall be maintained at 41oC.

- All showers shall be subjected to regular temperature monitoring. The temperature monitoring shall be supported with regular microbiological sampling where considered necessary.

- All shower heads shall be inspected on a regular basis and de-scaled, cleaned and disinfected. The disinfection process shall include all associated hoses.

- Where biological results indicate local bacterial contamination, the contaminated shower shall be either removed from use or fitted with a suitable HEPA filter to enable continued use of the facility; after consultation with the Infection Prevention and Control Team. Where such filters are fitted, they should be changed according to manufacturer's instructions.

8.6 Air Handling Units (AHUs)

- All AHUs shall be maintained in a good and clean condition and free from excessive corrosion and dirt deposition.

- All AHUs must be designed so that any water/condensate collected is discharged fully, freely and as quickly as possible.

- All associated drip-trays must be designed so that they can be easily accessible for cleaning and disinfection. All associated drip-trays must be fitted with a suitable drain assembly which is fitted with a suitable glass trap and a Type A air-gap prior to connection onto central drainage systems.

- All AHUs shall be subjected to a regular trap cleaning and disinfection.

- All AHUs" shall be subjected to a regular internal components (drip-tray, chiller and heater batteries and humidifiers) cleaning and disinfection.

8.7 Dental Chairs

- All dental chairs shall be flushed or emptied on a daily basis.

- All dental chairs shall be subjected to a cleaning and disinfection after each use on modern chairs fitted with cleaning facility and daily on older type chairs.

8.8 Birthing Pools

- Safety and hygiene are of paramount importance when using a Birthing Pool. There are three aspects to consider:
    - Microbiological Safety
    - Electrical Safety
    - Structural Safety
- The bath must only be filled with water from the building's domestic water system and must be maintained at a suitable temperature (≤ 41oC).
- The bath, including the heater units and hoses must be disinfected using a dilute solution of ClO2. (50ppm for 1 hour) after each use.

8.9 Hydrotherapy pools

- If they are not properly maintained, they can be a source of micro organisms that can cause illness to users.
- Bathers and the environment can pollute the water, which may lead to the spread of infectious diseases. Chemicals within poorly treated water can also cause problems such as skin rashes and irritated eyes.
- Managers of pools are responsible for ensuring that the facilities they are providing are safe and hygienic.
- Heated hydrotherapy pools can create a higher infection risk than cold pools if poorly maintained. The warm water provides an ideal environment for the rapid growth of micro organisms.
- Hydrotherapy pools have large volumes of people entering a small volume of water, therefore the organic and microbial loading may become high. This can have dramatic and harmful effects on the water quality, therefore placing the health of the users at risk. In order to maintain the quality of the water, the following parameters must be measured on a daily basis:
    - Free Chlorine/Bromine
    - Total Chlorine
    - Combined Chlorine
    - Total Alkalinity

- Total Dissolved Solids
- pH

- For hydrotherapy pools with heavy bather loads it is recommended that approximately 25% of the pool water be replaced on a weekly basis.

- It is recommended that hydrotherapy pool water should be exchanged and passed through the filter at least once in every two hours. For heavily used hydrotherapy pools, such as those used for fitness exercising, the pool water turnover should be less than one hour. The hydrotherapy pool must have a filtration system that provides a continuous circulation of the pool water through the filter.

9. Risk Assessments

A suitable and sufficient assessment, shall be carried out on all buildings which are owned and/or occupied by The Trust under a “full repairing lease”, in order to identify and assess the risk of Legionellosis from work activities and water sources on the premises and organise any necessary precautionary measures.

Systems which are susceptible to colonisation by Legionellae sp., and which incorporate means for creating and disseminating water droplets, shall be identified, and the risk they present will be assessed.

Risks shall be assessed not just for the routine operation of the system, but also in unusual circumstances, breakdown, abnormal operation, and commissioning.

The main objective of the Risk Assessment shall be to institute management procedures to ensure that compliance is continuing and not notional and to demonstrate that management has identified all the relevant factors, has instituted corrective or preventive action, and is monitoring that the plans are being implemented. In addition, the Risk Assessment shall identify:

- the risk to health, i.e. whether the potential for harm to health from exposure is reasonably foreseeable unless adequate precautionary measures are taken;

- what measures for prevention, or adequate control to minimise the risk from exposure to Legionella, should be taken.

The assessment shall include identification and evaluation of potential sources of risk and:

- the particular means by which exposure to Legionella is to be prevented; or

- if prevention is not reasonably practicable, the particular means by which the risk from exposure to Legionella is to be minimised.

Where the assessment demonstrates that there is no reasonably foreseeable risk or that risks are insufficient and unlikely to increase, no further assessment or measures are necessary.

However, should the situation change, the assessment shall be reviewed bi-annually and any necessary changes implemented.

The assessment shall be reviewed by the Building Inspectors, bi-annually and/or whenever there is reason to believe that the original assessment may no longer be valid. This may be because of, for example:

- changes to the plant or water or its use;
- changes to the use of the building in which it is installed;
- the availability of new information about risks or control measures;
- the results of checks indicating that the control measures are no longer effective.

The Risk Assessment shall include the following areas of the systems:

9.1 Cold Water Services

9.1.1 Storage

- Location, access and physical condition and hygiene standard of all domestic Water Storage Tanks.
- Design and configuration of all domestic water storage tanks.
- Capacity requirements and available storage capacities of all domestic water storage tanks.
- Temperature profiles of all domestic water storage tanks.
- Biological activities of all domestic water storage tanks.
- Water Supply Regulations parameter compliance of all domestic water storage tanks.

9.1.2 Distribution

- Location, access and physical condition of all domestic distribution pipe-work (where accessible).
- Design and configuration of all domestic distribution pipe-work.
- Temperature profiles of all domestic distribution services and outlets.
- Biological activities of all distribution services.
- Presence of dead-legs and areas of low flow within all the domestic distribution services.
- Usage considerations of all domestic distribution services.

9.2 Hot Water Services

9.2.1 Hot Water Generation and Storage

- Location, access and physical condition of all domestic hot water generating units.
- Design and configuration of all domestic hot water generating units
- Temperature profiles of all domestic hot water generating units, to include; flow, return and drain temperatures.
- Capacity requirements and available storage capacities of all domestic hot water generating units.
- Presence of temperature stratification within domestic water storage calorifiers.
- Biological activities of all domestic distribution services.

9.2.2 Distribution

- Physical condition of all domestic distribution pipe work.
- Design, configuration and accessibility of all domestic distribution pipe-work.
- Temperature profiles of all domestic distribution services and outlets.
- Biological activities of all domestic distribution services.
- Presence of dead-legs and areas of low-flow within all the domestic distribution services.
- Usage considerations of all domestic distribution services.
- Presence of space-heating within all domestic distribution pipe work.
- Condition, temperature profiles and operation status of all showerheads within all domestic distribution services.
- Condition, temperature profiles, accessibility and operation status of all TMVs within all domestic distribution services.
- Presence of undesired lengths of blended water pipe-work within all domestic distribution services.

9.3 Air Conditioning

- Physical condition of all associated Air Handling Units.
- Design, configuration and accessibility of all associated Air Handling Units.

- Method of humidification and operation status of all humidifiers within all associated Air Handling Units.
- Condition, design and configuration of drip-trays within all associated Air Handling Units.
- Condition, design and configuration of glass traps/U-bends within all associated Air Handling Units.
- Physical condition and hygiene standards of duct-work of all associated Air Handling Units.

9.4 Nebulisers

- Type of units in use.
- Physical condition of units.
- Water sources used.
- Usage profiles.
- Maintenance programme and hygiene standards employed.

9.5 Dental Chairs

- Type of units in use.
- Physical condition of units.
- Water sources used.
- Usage profiles.
- Maintenance programme and hygiene standards employed.

9.6 Other Systems Including Birthing and Hydrotherapy Pools

- Type of unit.
- Potential to cause an aerosol.
- Potential of aerosol being inhaled.
- Physical condition of units and associated plant.
- Location, design, configuration and accessibility of all units.
- Water treatment programmes in place and their efficacy (if applicable).
- Maintenance programme and hygiene standards employed.

9.7 Management, Maintenance, Monitoring and Record Keeping

- Presence of and adequacy of all implemented monitoring and maintenance programmes in place.

- Presence of and adequacy of all implemented record keeping programmes in place.

- Presence of and adequacy of all implemented auditing programmes in place.

All areas listed above shall be measured and expressed numerically indicating the contribution of each area to the overall risk.

9.8 Current Risk Assessment Status

The Responsible Person shall maintain a database of all Risk Assessments carried out. In addition, a "Current Risk Assessment Status" listing shall be maintained for each site.

9.9 Interim Reports

For all buildings/areas assessed to be of Moderate Risk or higher, the Consultant shall issue an "Interim Problem Notification Form" indicating any necessary immediate corrective and remedial actions that need to be carried out. In addition, the "Interim Problem Notification Form" shall indicate the short/medium-term and long-term corrective and remedial actions that need to be carried out.

9.10 Consultancy Memoranda

Any instructions and advice from the Consultants shall be in the form of a "Consultancy Memorandum", which shall clearly indicate the nature of any faults/problems discussed and the resulting risk of Legionellosis caused. In addition, any corrective action or remedial works required, shall be clearly stated and listed and prioritised in terms of urgency.

9.11 Preparation of an Action Plan

On completion of the Risk Assessments, the Responsible Person shall undertake the following:

- Consider the Risk Assessments, Interim Problem Notification Form Reports and Consultancy Memoranda pertaining to each building, and ensure the design, arrangement, implementation and management of all necessary remedial works required to allow the systems to comply with the current and relevant guidelines and legislation, and to ensure minimisation or control of the prevailing risk.

- Consider the Risk Assessments, Interim Problem Notification Form Reports and Consultancy Memoranda pertaining to each building, and ensure the design, arrangement, implementation and management of all Pre-Planned Maintenance Programmes

required to allow the systems to comply with the current and relevant guidelines and legislation, and to ensure minimisation or control of the prevailing risk.

9.12 Risk Assessment Status

The Current Status of the Risk Assessments is kept within the Estates Department.

10. Planned Maintenance Programme Frequencies

The actual frequency adopted by the each site will depend on the requirements of the plant itself.

Item Monitored	Task		Frequency	
			Patient Areas	Non-Patient Areas
Cold water storage tanks *Including all Domestic and Process Tanks	Required capacity determination		ANNUALLY	ANNUALLY
	Temperature Monitoring		MONTHLY	QUARTERLY
	General Inspections		QUARTERLY	6 - MONTHLY
	Biological Monitoring		QUARTERLY	NOT REQUIRED
	Clean and Disinfection		ANNUALLY OR AS REQUIRED	AS REQUIRED OR ANNUALLY
Calorifiers to include: Calorifiers include: Storage vessels, buffer vessels, direct gas-fired, plate heat-exchanges etc. Where multiple calorifiers are linked, the monitoring must include the flow and return of EACH unit and not just common flow & return.	Temperature Monitoring	Automatic	CONSTANT ON BMS	CONSTANT ON BMS
		Manual	DAILY (IF NO BMS)	MONTHLY (IF NO BMS)
	General visual inspections and Drain Sludge Flushing		QUARTERLY	6 - MONTHLY
	Biological Monitoring		QUARTERLY	NOT REQUIRED
	Pasteurisation/Disinfection		AS REQUIRED	AS REQUIRED
Point of use Instant Water Heaters Less than 10 litres	Temperature Monitoring		6-MONTHLY	6 - MONTHLY
	General visual inspections		6-MONTHLY	6 - MONTHLY
HWS & CWS Distribution Systems *The Sentinel taps must be representative of the system monitored and must be fed "directly" from the system and always monitored prior to blending devices.	Temperature Monitoring (*Sentinel Outlets")		MONTHLY	MONTHLY
	Biological Monitoring		AS REQUIRED	AS REQUIRED
	Clean and Disinfection		AS REQUIRED	AS REQUIRED
	Dead-leg/Infrequently used areas flushing		WEEKLY	WEEKLY
	ClO_2 level monitoring (Where applicable)		MONTHLY	N/A
Fire Fighting Equipment *When Fire Fighting Equipment are off the Domestic water supplies unrestricted.	Fire hose reels flushing		MONTHLY	MONTHLY
Thermostatic Mixing Valves (Including Shower Mixers)	Temperature Monitoring	Baths/Showers	MONTHLY	QUARTERLY
		Basins/Sinks	QUARTERLY	QUARTERLY
	Clean and Disinfection and/or Servicing	Baths/Showers	AS REQUIRED	AS REQUIRED
		Basins/Sinks	AS REQUIRED	AS REQUIRED
Shower Heads associated Hoses ***	Temperature Monitoring		MONTHLY	QUARTERLY
	General Inspections		QUARTERLY	6 - MONTHLY
	Biological Monitoring		QUARTERLY	NOT REQUIRED
	Shower Head Clean and Disinfection		QUARTERLY	AS REQUIRED
Air Conditioning/Handling	Inspection and cleaning of glass traps		MONTHLY	QUARTERLY
	AHU drip-trays and batteries clean and disinfection		6 - MONTHLY	ANNUALLY

Dental Chairs ^^^	Clean and Disinfection	FOLLOWING EACH DAY OF USE	
Hydrotherapy Pool	General Inspections and Water Treatment analysis	DAILY	N/A
Lathes/Cutting Tools	Clean and Disinfection	N/A	QUARTERLY

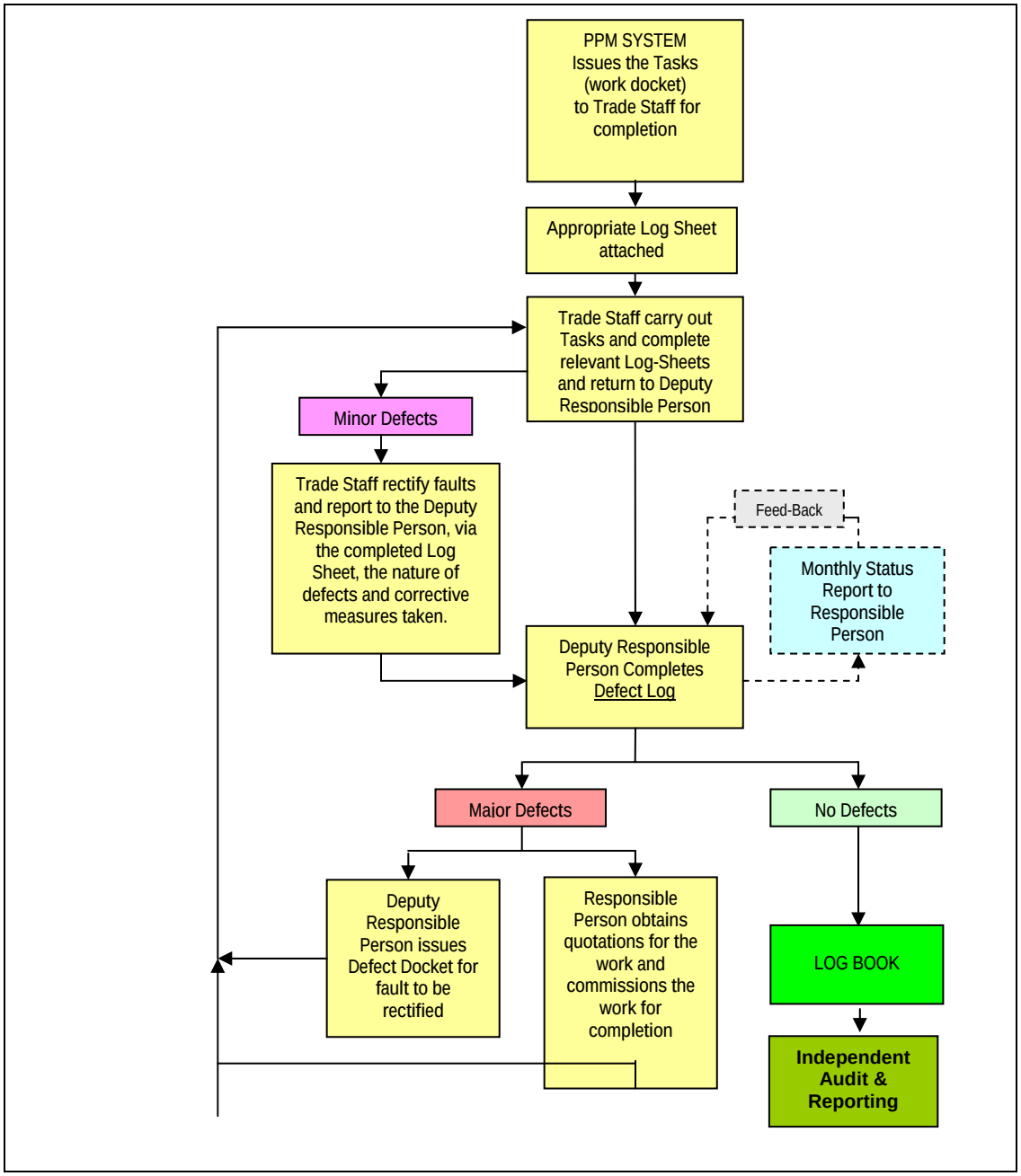
Note:

*** Shower Heads and Associated Hoses are disinfected weekly on transplant units and on the general wards if not in use.

^^^ Only some dental chairs are fitted with cleaning facilities after each use, this is dependant on the manufacturer.

11. Method of Operation of the PPM Programme

The Method of Operation of the PPM Programme is described and depicted in the Schematic below – Programme method of Operation.



12. Legionellosis Management & Control PPM Programme Task Specifications references

All remedial works and pre-planned maintenance work, whether carried out by appointed Contractors or by The Trust personnel, or otherwise, shall be carried out in accordance with the following requirements and shall:

- Comply with ACoP L8 – “The Control of Legionella bacteriain water systems Approved Code of Practice & Guidance 2001”.
- Comply with HTM 04-01 - “The Control of Legionellae Hygiene, "Safe" hot water, cold water and drinking water systems". Part A : Design, Installation and Testing. Part B : Operational Management.
- Comply with HTM 03-01 – “Heating and Ventilation of Healthcare Premises". Part A: Design & Validation. Part B :Operational Management and Performance Verification.
- Comply with Health Guidance Note (HGN) “Safe” hot water and surface temperatures – 1998.
- Comply with National Health Service Model Engineering Specifications D08 Thermostatic mixing valves (Healthcare Premises).
- Comply with Control of Substances Hazardous to Health Regulations 2002, Regulation 6 (COSHH).
- Comply with this Policy and use the Reporting and Logging Programme employed on site.
- Only competent/suitably trained persons will be allowed to work on Trust systems.
- All measuring equipment shall be adequately and validly calibrated and accompanied by a current calibration certificate. Appropriate temperature “correction factors” shall be applied to surface temperatures Refer to BSRIA Application Guide AG 4/94 – Guide to Legionellosis – temperature measurements for hot and cold water services.
- All biological analysis shall be carried out by a suitably accredited laboratory.

13. Measured Parameter Recommended Limits

13.1 Temperatures:

13.1.1 Cold Water Temperatures

- Mains Cold Water: Maximum 20oC
- Boosted Cold Water: Maximum 20oC
- Tanked Cold Water: Maximum 20oC
- Sentinel Outlet Cold Water: Maximum 20oC

13.1.2 Hot Water Temperatures

- Storage Calorifier “Set” point: Minimum 60oC
- Storage Calorifier “Flow”: Minimum 60oC
- Storage Calorifier “Return”: Minimum 50oC
- Storage Calorifier “Drain”: Minimum 60oC
- Storage Calorifier “Cold-feed”: Maximum 20oC
- Sentinel Outlet Hot Water: Minimum 50oC

- Cistern-type Water Heater “Set” point: Minimum 60oC
- Cistern-type Water Heater “Flow”: Minimum 60oC
- Cistern-type Water Heater “Cold-feed”: Maximum 20oC
- Sentinel Outlet Hot Water: Minimum 50oC

- Instant Water Heater (>30litres) “Set” point: Minimum 60oC
- Instant Water Heater (>30litres) “Flow”: Minimum 60oC
- Instant Water Heater (>30litres) “Cold-feed”: Maximum 20oC
- Sentinel Outlet Hot Water: Minimum 50oC

- Instant Water Heater (<30litres) “Set” point: Comfort
- Instant Water Heater (<30litres) “Flow”: Comfort
- Instant Water Heater (<30litres) “Cold-feed” Maximum 20oC
- Sentinel Outlet Hot Water: Comfort

13.1.3 Blended Water Temperatures

- Showers: Maximum 41oC
- Basins/Sinks: Maximum 43oC
- Baths: Maximum 43oC
- Bidets: Maximum 38oC

13.2 Biological Contamination:

Water sample results shall be returned to Trust Reponsible Person or their Deputy who will escalate the findings to the Director of Infection Prevention and Control or Infection Prevention and Control Site Doctor to seek advice and establish further action(s) required.

14. Record Keeping

14.1 Requirements

- All findings and results from each task shall be entered in the appropriate, Building specific, Log Sheet of the Trust’s Reporting and Logging Format.

- All records shall be kept and maintained for at least five years.

- All entries shall be dated and bear the signature of the person carrying out each task.

- The Data Recording Format shall:

    - Identify the installation requiring attention and how it operates.

- Record results of the initial commissioning (if available) and any re-commissioning so that observations made during maintenance checks can be compared.

- Define the maintenance task or observation required and the frequency.

- Provide for the recording of maintenance observations and results and for comments to be made in respect of any defect seen during the inspection. This facility should exist for each item of plant individually and for overall system observations.

- Provide for, and make reference to, any separate observation sheet required to record extensive or abnormal observations which cannot be noted on the routine inspection sheets.

- Facilitate cataloguing and cross-referencing to other data recording formats for plant/installations on the same Site (for example, the refrigeration plant, the chilled water installation, the air conditioning plant and the heat source).

- Provide dates and results of inspections, tests and all associated works and procedures.

- Provide dates for next scheduled inspection, test and associated works visits.

- The movement of information from shall follow the process described in Section 12.0 Programme Method of Operation.

15. On-Going Auditing

15.1 The Trust Responsible Person:

Shall have overall responsibility, via the Deputy Responsible Persons, for auditing the Legionellosis Management & Control Programmes across the Trust, and reporting all findings to the Legionellosis Management & Control Steering Committee which reports to the Board of Directors.

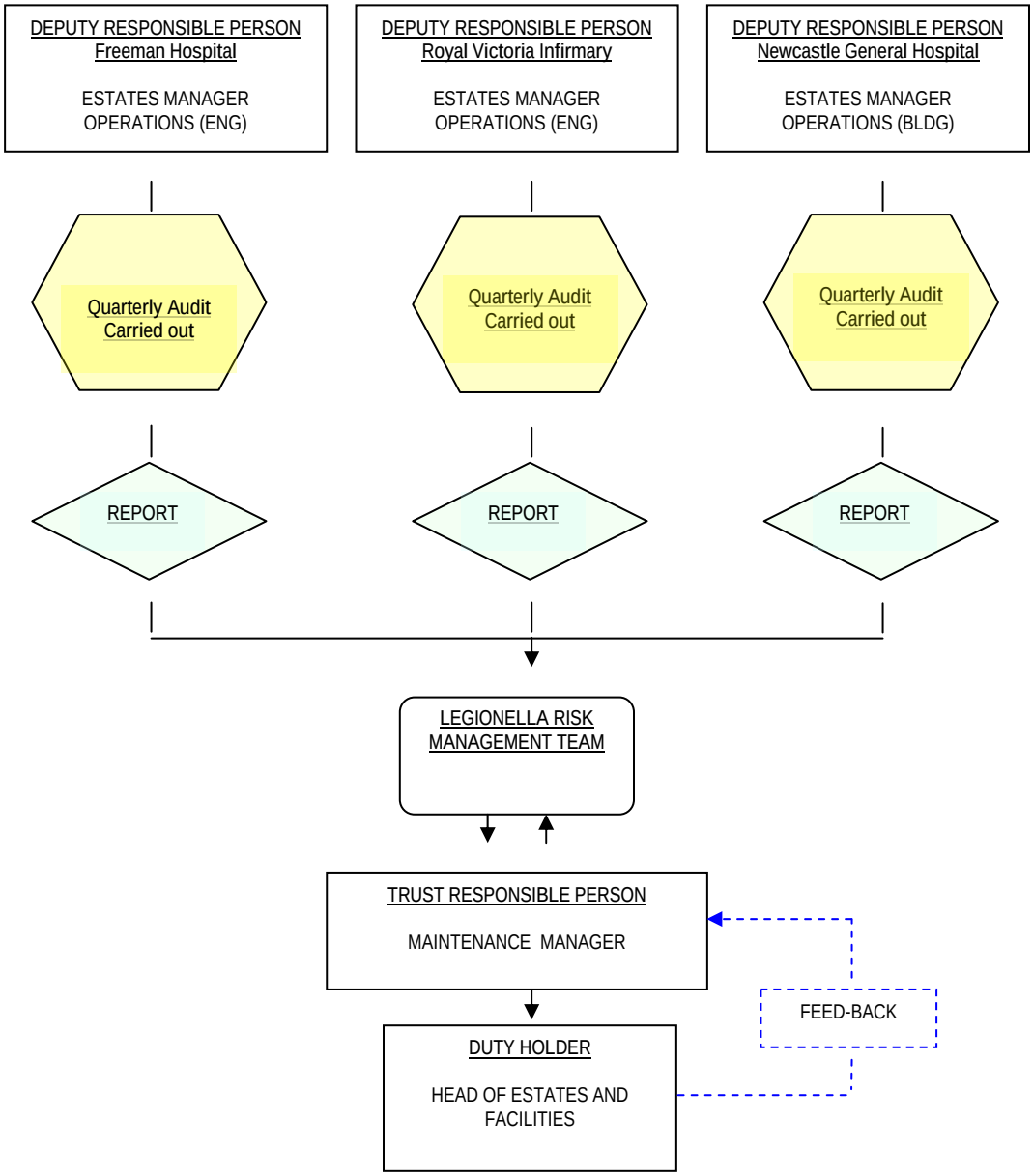
15.2 The Deputy Responsible Person

- Shall be responsible for arranging and managing all auditing procedures for buildings under their control.

- Shall carry out, directly or by appointing a suitable qualified Independent Consultancy Firm, a detailed Quarterly audit to assess the compliance of the Legionellosis Management & Control Programme implemented in buildings under their control with ACoP L8 and all relevant HTMs and in particular the status of the Risk Assessment Schedules, the Management Structures and Control procedures.

- Shall issue a report of the findings of each audit to the Trust Responsible Person via the Legionella Risk Management Team.

The flow chart below describes the Auditing Reporting process:



16. The Course of Action if an Outbreak of Legionnaires 'disease is suspected

See Procedures issued and managed by the Control of Infection Committee.

Author: Senior Estates Officer Specialist Services

THE NEWCASTLE UPON TYNE HOSPITALS NHS FOUNDATION TRUST
IMPACT ASSESSMENT – SCREENING FORM A

This form must be completed and attached to any procedural document when submitted to the appropriate committee for consideration and approval.

Policy Title:	The Management and Control of Legionellosis including Legionnaires Disease Policy	Policy Author:	Ian Clayton
		Yes/No?	You must provide evidence to support your response:
1.	Does the policy/guidance affect one group less or more favourably than another on the basis of:		I believe this policy document does not discriminate against any individual either employed by the Trust or as a visitor
	• Race	No	
	• Ethnic origins (including gypsies and travellers)	No	
	• Nationality	No	
	• Gender	No	
	• Culture	No	
	• Religion or belief	No	
	• Sexual orientation including lesbian, gay and bisexual people	No	
	• Age	No	
	• Disability – learning difficulties, physical disability, sensory impairment and mental health problems.	No	
2.	Is there any evidence that some groups are affected differently?	No	
3.	If you have identified potential discrimination, are any exceptions valid, legal and/or justifiable?	N/A	
4(a).	Is the impact of the policy/guidance likely to be negative? *(If "yes", please answer sections 4(b) to 4(d)).*	No	
4(b).	If so can the impact be avoided?	N/A	
4(c).	What alternatives are there to achieving the policy/guidance without the impact?	N/A	
4(d)	Can we reduce the impact by taking different action?	N/A	

Comments:	**Action Plan due (or Not Applicable):** **Not Applicable**

Name and Designation of Person responsible for completion of this form: Ian Clayton – Senior Estates Officer Specialist Services Date: 06/04/09

Names & Designations of those involved in the impact assessment screening process: The policy has been commented upon the following representatives – Estates: External expert / trust water advisor; health and safety; Infection Control; Risk management

(If any reader of this procedural document identifies a potential discriminatory impact that has not been identified on this form, please refer to the Policy Author identified above, together with any suggestions for the actions required to avoid/reduce this impact.)