DIRECTORATE OF ESTATES AND FACILITIES & FACILITIES

PROCEDURE AND INFORMATION MANUAL

EPM HS4 –THE MANAGEMENT OF WATER SYSTEMS AND CONTROL OF LEGIONELLA.

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1.0 Scope of Policy

This document sets out the policy and procedure for the control of legionella in water systems managed by the Directorate of Estates.

The policy is intended to ensure that current legislation and best practice are achieved for the management of these systems.

For water systems under the control of the School/institute where there is a risk of legionella the responsibility for managing the risk is with the School/institute.

Water systems used in teaching and research together with School/institute equipment (water tanks, associated pipework, fittings, humidifiers, fish tanks etc.) are the responsibility of the School/institute – and shall be managed/controlled as documented in the respective School/institute Legionella Risk Assessments.

It is noted that for non-University premises where University staff are embedded the arrangement for the management of legionella is the responsibility of the Duty Holder for the respective building. - The University shall put in place arrangements for assurance that legionella is being effectively managed in these building.

2.0 Commitment Statement

The university intends to adopt the principles of control and management identified in HSE Approved Code of Practice and Guidance 'L.8 (2013) - The control of legionella bacteria in water systems' together with the HSE Technical Guidance HSG274 Part 1: 'Evaporative cooling systems', Part 2: 'Hot and cold water systems' & Part 3: 'Other risk systems' as far as reasonably practicable.

3.0 Legal Responsibility – Duty Holder

The legal responsibility for the management of legionella in the University of Manchester is the employer; this duty shall be undertaken by the President and Vice Chancellor hereafter called the Duty Holder.

The Duty Holder shall appoint the Director of Estates and Facilities to act as the Duty Holder's Representative for the Directorate of Estates and Facilities managed water systems and to discharge the duties.

4.0 Directorate of Estates: Responsibility

The following posts have been identified as having specific responsibilities for the control and management of water systems under the control of the Directorate of Estates and Facilities. Refer to Appendix K, Legionella Management Structure

4.1 Duty Holder's Representative:

For the control and management of legionella shall be the Director of Estates and Facilities. The responsibilities of the Duty Holder's Representative are:

- To represent the Duty Holder and assume responsibility for formally issuing reports to the Governing body on the control and management of legionella.
- To ensure that legionella is managed in accordance with the control of legionella bacteria in water systems and that the requirements of this policy and procedure document are resourced and adhered to.
- To formally appoint the Responsible Person and the Deputy Responsible Person.
- To approve or delegate the approval process to the responsible person, the 6 monthly report(s) on the management of legionella. The reports shall include, but shall not be limited to:

    - A statement detailing the maintenance activities undertaken during the previous 6 months.
    - A statistical return on the "tap temperature measurements" undertaken during the previous 6 months.
    - Management by exception report(s) - resulting from the maintenance and inspection regime - with actions taken to resolve the issues.
    - Confirmation that Legionella Risk Assessments are up to date and all recommendations have been actioned or have been scheduled to be actioned within a defined timeframe.

- To approve the water systems budgets.
- When advised by the Responsible Person, to approve additional expenditure for modifications to water systems.
- To instruct the relevant Groups/Units within the Directorate of Estate that they must ensure that all new or modified water systems are designed in accordance with the relevant British standards, The HSE ACOP L8, the HSE Technical Guidance HSG274 Part 1: Evaporative cooling systems, Part 2: Hot and cold water systems & Part 3: Other risk systems, the University's Design Team Guide EPM PM7, CIBSE TM13 and that all works are approved in writing by the Responsible Person.
- To monitor that the Responsible Person, undertakes his duties.
- In the event of a legionella incident, to direct and authorise the Responsible Person to initiate an independent investigation and to direct the Responsible Person on any actions that may need to be taken.

4.2 Responsible Person:

For the Management and Control of Legionella shall be the University Mechanical and Energy Engineer. The responsibilities of the Responsible Person are:-

- To assume the day to day responsibility for the management of legionella in the Directorate of Estates and Facilities managed water systems.
- To be the single point of contact for the Health and Safety Executive (HSE) in the event of an enquiry.
- To deliver the 6 monthly report(s) on the management of legionella.
- To monitor on behalf of the Duty Holder's representative, the management of legionella.
- To monitor the effectiveness of the legionella policy and procedure document – to make timely recommendations for improvement as and when necessary.

- To ensure on a 2 yearly planned cycle that water Legionella Risk Assessments are undertaken by a consultant (registered with the Legionella Control Association) and to arrange for additional Legionella Risk Assessments to be carried out when significant changes to water systems are undertaken.

- To ensure that the recommendation identified in the Legionella Risk Assessments are carried out within the recommended timescale.
- Where necessary to advise the Duty Holder's Representative, (using a standard request form) that additional funds are required to undertake essential works – detailing the work to be undertaken and the consequence of funding not be available. Refer to Appendix A, Funding Request for Essential Works
- To appoint, and monitor the effectiveness of the specialist water treatment company and water specialist consultants so as to ensure that they are providing the service in accordance with their terms of reference.
- To approve the University of Manchester's Design Team Guide for the requirement of water system – EPM PM7 – Code of Practice for Design Teams
- To approve modifications to existing and new water systems.
- To develop and issue precise instructions relating to the maintenance of water systems.
- To receive/analyse reports/worksheets from Contractors, Consultants, DLO Technicians, Plant Operators, House Service staff, external bodies - where appropriate to issue instructions for remedial works /retests etc.
- To identify training needs and ensure that training is provided as required.
- To action and monitor any necessary remedial work from the audit.
- To chair a 6 monthly meeting of the Legionella Working Group.
- To provide a 6 monthly written report to the Duty Holder's Representative.
- To provide the Duty Holder's Representative with written management by exception reports when required.
- To undertake other specific duties detailed within this document.

4.3 Deputy Responsible Person

When the Responsible Person is absent from the University – the Mechanical Engineer, Compliance & Energy or the Assistant Mechanical Engineer shall act as the Deputy Responsible Person and shall assume the Responsible Person's duties.

In the event that urgent decisions are required on design (approving modifications to water systems) he is empowered to engage a specialist water consultant for clarification.

In the event that the Deputy Responsible Person is uncertain of any actions to be taken he shall in the first instance take the matter up with the full or part of the Legionella Working Group and his line manager - in the event that a satisfactory resolution cannot be reached, the matter shall be brought to the attention of the Duty Holder's Representative for direction.

All decisions actions relating to the management and control of legionella shall be fully documented and recorded in the water systems records and the matter(s) and action(s) taken shall be brought to the attention of the Responsible Person on his return to the University.

4.4 Maintenance Services Unit Manager: is responsible for:-

- Ensuring that resources are available to the respective teams within the Maintenance Services Unit.
- Monitor that Maintenance Services discharge their responsibilities as detailed.
- Provide support to the Responsible Person.
- Provide reports when requested by the Responsible Person.

4.5 Area Managers are responsible for:-

- Ensuring that Planned Preventative Maintenance (PPM) instructions are completed within the timeframe.
- Providing evidence that all maintenance works have been undertaken and that a clear audit trail is maintained.
- Ensure that where tap temperature measurements are carried out by the DLO Technicians that they are completed in accordance with the programme.
- Ensuring that where reports highlight anomalies in the system, actions are identified and managed.
- Ensuring that each team effectively manage/monitor the water treatment contract.

4.6 Area Supervisors – Mechanical are responsible for:-

- Ensuring that the supervisory teams only use trained operatives, who understand their contribution to the management of legionella.

- Ensuring that the Supervisors, DLO Technicians and Plant Operators undertake their duties regarding maintenance activities including:-

    - Inspection of water tanks
    - Tap temperature measurement
    - Tank temperature measurement
    - Calorifier temperature measurements
    - Infrequently used outlets
    - Shower flushing
    - TMV maintenance
    - Expansion vessel maintenance
    - Solar domestic water heating systems
    - Water features
    - Remedial work associated with Legionella Risk Assessments

4.7 DLO Technicians and Plant Operators

Responsible for carrying out the following work:-

- Inspection of water tanks
- Tank temperature measurement
- Calorifier temperature measurements
- TMV maintenance Expansion vessel maintenance
- Solar domestic water heating systems
- Water features
- Remedial work associated with Legionella Risk Assessments

4.8 Head(s) of Faculty Estates and their respective team(s) Responsible for:

- Monitoring building usage in relationship to water consumption
- Communicating throughout the School/institute, to ensure that water usage is effectively monitored
- Advising the Responsible Person – (via the Maintenance Services Unit Manager) in writing of any significant changes to water systems or potential changes in water consumption
- To act as the focal point for communication to the Directorate of Estates and Facilities (Responsible Person), Health and Safety Services and the School/institute in the event of a legionella problem.

4.9 Assistant Mechanical Engineer

Responsible for ensuring that the maintenance programme is issued, returned, recorded and managed for:-

- Inspection, cleaning and disinfection of water tanks
- Tap temperature measurements
- Calorifier temperature measurements
- Infrequently used outlets
- Shower flushing
- TMV maintenance
- Expansion vessel maintenance
- Shower cleaning and disinfection
- Remedial work associated with Legionella Risk Assessments

Ensure by liaison with the respective stakeholders that a 100% return for all associated legionella records and maintenance/inspection/test instructions is achieved.

Ensure that where worksheets indicate additional work is required - that re-worksheets are issued with clear and precise instructions, and to monitor that rework is completed within agreed timescale.

Ensure that the Responsible Person is advised of all significant changes or potential changes in water consumption.

Providing a monthly standard report to the Responsible Person. Refer to Combined Returned Spreadsheet.

To undertake other specified duties detailed within this document.

4.10 Mechanical Engineer, Compliance & Energy

Responsible for ensuring that the maintenance programme is issued, returned, recorded and managed for:-

- Provide advice on compliance matters.
- Carry out a quarterly audit to ensure that all issues have been actioned and that the records are up-to date.

- Preparing formal reports on the management of risk – relating to water systems.

To undertake other specified duties detailed within this document.

4.11 House Services Manager and Team

Ensuring that operatives undertake their duties regarding:

- Carry out tap temperature measurements
- Flushing of showers
- Running taps identified as infrequent use

4.12 Design Services Unit Manager / Head of Capital Projects

Ensure that their respective teams and external designers comply with the requirements of this document.

Ensure that the designers have written approval from the Responsible Person prior to the works being undertaken.

Ensure that contractors working under their control comply with this document and its appendices – paying particular attention to the management of water systems on sites for which they have been given instruction to manage.

4.13 Specialist Water Treatment Companies: Responsible for:-

- Providing professional advice
- Providing chemicals as required
- Disinfection of tanks and showers
- Providing chemical analysis reports
- Providing analysis of water samples
- Working within their terms of reference

4.14 Specialist Water Treatment Consultants: Responsible for:-

- Providing professional advice
- Preparing schematics detailing water tanks, pumps, taps, sentinel tap(s) etc.
- Providing advice on sentinel taps
- Preparing detailed Legionella Risk Assessments
- Providing advice on prioritisation of works
- Preparing formal reports on the management of risk – relating to water systems
- Working within their terms of reference

4.15 Legionella Working Group: Responsible for

- The development of the policy and procedure document – ensuring that legislative and best practice requirements are incorporated.
- Assisting the Responsible Person by attending the 6 monthly review of the management of legionella meetings.
- Acting as a critical friend to the Responsible Person

5.0 Risk Management - Maintenance/Inspection and Testing

5.1 Legionella Risk Assessments

It is a legal duty to carry out an assessment to identify and assess whether there is a risk posed by exposure to legionella from the hot and cold water system or any work associated with it. Refer to Appendix B, Risk Assessment Process.

5.2 Water Cooling Towers

The Directorate of Estates and Facilities has removed all cooling towers (evaporative cooling systems) from university buildings. Cooling towers will not be considered on future projects.

5.3 Hot and Cold Water Systems

Hot and cold water systems are those that supply water for domestic purposes (drinking, cooking, food preparation, personal hygiene and washing). They comprise water (storage) tanks, calorifiers, associated valves, filters and insulation etc.

Water tanks shall be clearly identified with its designated asset number – the identification reference shall be used on all correspondence, certificates and photographic evidence. Refer to Appendix C, Tank Inspection Process.

The temperature test points (two per tank) shall be clearly marked on the respective tanks.

Water tanks shall be inspected twice per annum as detailed on the maintenance instructions.

Additional inspections shall be carried out when directed by the Responsible Person.

DLO Technicians or external specialist water treatment company operatives who have undergone legionella/water management training shall be assigned to this operation.

The technicians shall be provided with a toolbox to enable the maintenance to be carried out effectively with the minimum amount of rework or revisits.

5.4 Tap Temperature Monitoring

- Tap temperatures shall be monitored to ensure that the systems operate within the tolerances. Refer to Appendix D, Tap Temperature Monitoring Process.
- Cold water below 20°C after running the tap for at least 2 minutes
- Hot water above 50°C after running the tap for at least 1 minute.
- The sentinel tap for each building shall be identified by the specialist Legionella Risk Assessments Consultants and the Responsible Person
- Additionally on a rotational basis further taps (for each system – Hot, cold, lab water etc.) shall be tested.
- In larger buildings or buildings with complex hot water systems additional taps, on sub-ordinate and tertiary loops (as identified in HSG274 Part 2 Appendix 2.5), shall be identified and instructions given for quarterly tap temperature measurements to be taken and recorded.

- Tap temperature measurements shall be taken at the sentinel taps (and other identified taps) each month – the results of the test shall be recorded on the instruction/worksheets. Refer to Appendix E, Domestic Water Temperatures – Monthly Record

The responsibility for carrying out tap temperature measurements for specified buildings is with the following –

Directorate of Estates and Facilities Building Attendants/Porters and Cleaners.

- Directorate of Estates and Facilities DLO Technicians and Plant Operators
- Directorate of Estates and Facilities cleaners and other identified staff
- Individual identified staff in non-academic or residential properties – (Museum, Whitworth Art Gallery etc.)

The staff employed to undertake this work shall be trained in legionella awareness and the tap temperature measurement recording procedure – the frequency of testing, together with the content of the course shall be determined by a training needs analysis.

The tap temperature measurements shall be returned within 5 working days to the Assistant Mechanical Engineer.

The Assistant Mechanical Engineer shall:-

- Ensure that a 100% return of issued worksheets are received within the stipulated time
- Inform the respective managers in the event of failure to return
- Bring issues to the attention of the Responsible Person, if the managers fail to resolve the problem
- Identify all area of none conformity

In instances where the tap temperature tolerance(s) are below/above the stated level - issue work instructions as required, monitor that that the work is undertaken within the specified time and apprise the Responsible Person of the actions taken.

The Assistant Mechanical Engineer shall maintain the records for all tap temperature measurements.

The Responsible Person shall ensure that microbiological monitoring for Legionella is carried out when any of the 4 circumstances described in L8 Technical Guidance HSG247 Part 2: Clause 2.120 occur. In addition to the minimum requirements the Responsible Person shall select at random additional buildings to sample in order to reassure the university that the control measures are working satisfactorily.

When the Assistant Mechanical Engineer is instructed to arrange for legionella testing he shall manage the following procedure:-

- An order shall be placed with the independent UKAS accredited water sampling (specialist water)company to undertake the work and provide written report and recommendations
- The results shall be discussed with the Responsible Person

- The Responsible Person actions shall be recorded and where necessary worksheets issued
- Worksheets shall be time limited
- Monitor that the works are completed within the agreed time limits
- Arrange further analytical testing if required

5.5 Taps – (little used outlets) - Routine Flushing

Academic buildings:

The House Services team shall, as part of the cleaning regime, flush each tap weekly by running the water for a minimum period of 2 minutes. Refer to Appendix F, Shower and Little Used Outlet Flushing Process, and Appendix G, Little Used Outlet Flushing – Monthly Record.

- The exception shall be taps in laboratories which shall be the responsibility of the respective Schools/Institutes.

- Taps in plant rooms – shall be flushed by the DLO Technicians on a weekly basis for a period of 2 minutes.

Residential buildings:

Directorate of Estates and Facilities shall be advised to include in their terms and conditions for letting the room to students and or others that each tap must be flushed daily by running the water for a period of 2 minutes.

Rooms that are not let for a period in excess of 7 days – Residential Services shall arrange for each tap to be flushed weekly by running the water for a minimum period of 2 minutes.

Confirmation that empty rooms, falling into the above category, are issued to the Assistant Mechanical Engineer for filing and audit.

Miscellaneous buildings managers: shall be requested to instruct their respective cleaners that as part of the cleaning regime to flush each tap weekly by running the water for a minimum period of 2 minutes.

5.6 Shower heads and connecting hoses routine flushing

Academic buildings - The House Services team shall have responsibility for routine flushing of showers with the exception of:-

- Laboratory emergency showers – (responsibility is with the respective Schools/Institutes)

- Showers in plant rooms – (responsibility is with Maintenance Services)

As part of the cleaning regime flush each shower by running the water at its maximum temperature for a minimum period of 2 minutes. Refer to Appendix F, Shower and Little Used Outlet Flushing Process, and Appendix H, Shower Flushing - Monthly Record

Academic buildings: the DLO Technicians shall as part of the plant room management regime flush each shower weekly by running the hot water at its maximum temperature for a minimum period of 2 minutes.

Residential buildings:

Directorate of Estates and Facilities shall be advised to include in their terms and conditions for letting the room to students or others that each shower must be flushed, at a minimum weekly, by running the water at its maximum temperature for a period of 2 minutes.

Rooms that are not let for a period in excess of 7 days – management shall arrange for each shower be flushed by running the water for a minimum period of 2 minutes.

Confirmation that empty rooms, falling into the above category, are issued to the Assistant Mechanical Engineer for filing and audit.

Miscellaneous building(s) managers: shall be requested to instruct their respective cleaners that as part of the cleaning regime to flush each shower weekly by running the water for a minimum period of 2 minutes.

5.7 Showers and Eye Washes – Disinfection Regime

The Assistant Mechanical Engineer shall:

- Produce a programme for the cleaning and descaling of showerheads and associated hoses, emergency showers and eye washes in all buildings.
- Issue a Planned Preventative Maintenance (PPM) order to ensure that this activity is carried out.
- Ensure that the records of the activity are returned to PSU and filed.

5.8 Hot Water Systems

In addition to the requirement detailed above for the cold water systems, hot water systems shall have the following additional maintenance requirements.

Domestic hot water be stored at 60ºC and distributed with a pump return temperature of 50ºC minimum.

Calorifiers shall be maintained annually to ensure their efficiency and that they do not contribute to potential legionella problems.

Copies of the completed maintenance worksheets shall be forwarded to the Assistant Mechanical Engineer.

The Assistant Mechanical Engineer shall bring to the attention of the Responsible Person any anomalies that require action and shall ensure that the Responsible Person's instructions regarding additional work (reworks) are actioned.

It is the University's intention (in the long term) where applicable to replace large calorifiers with plate heat exchange units.

In addition to the annual maintenance and insurance inspection, where appropriate, the following monthly inspections shall be carried out by the Maintenance Services Plant Operators:-

- Check that the water temperature measurements are within the agreed tolerance. Adjust temperature settings as required to meet the minimum setting (60°C)

- Advise the Mechanical Supervisor and the Assistant Mechanical Engineer of any calorifiers etc. that are operating outside of their specified parameters and are reported together with any faults identified on the Building Management System (BMS)

- Provide colleagues carrying out tap temperature measurements with the respective calorifiers temperature measurements

5.9 Humidifiers, Air-Washers and Ornamental Water Fountains

It is the university's policy not to use evaporative type humidifiers, air-washers and ornamental water fountains. All known equipment has been drained and decommissioned. Where humidifiers are required they shall be of the steam injection type. The use of this equipment must be approved by the Responsible Person.

Annually the Responsible Person shall write to the Assistant Director of Estates and Facilities and the Maintenance Services Manager to seek confirmation that there are no spray humidifiers, ultrasonic humidifiers or air washers in use.

The responses shall be included on the annual report to the Duty Holder's Representative.

6.0 Risk Management – Design

The Directorate of Estates and Facilities is committed to ensuring that all new water systems and modifications to existing systems are designed and installed to meet the Water Supply (Water Fittings) Regulation 1990, relevant British Standard(s), ACOP(s), CIBSE TM13 and the Directorate of Estates and Facilities Procedure & Information Manual EPM PM07 – Code of Practice for Design Teams.

New and modified systems shall be controlled by:

Small (day on day replacements) maintenance: activities including:-

- Replacement of tap washers
- Replacement of taps on a like for like basis (excluding aerosol type)
- Replacement of damaged pipe fittings
- Replacement of short lengths of damaged pipework (max 5 metres)
- Replacement of sink units
- Replacement of directly fixed equipment water-boilers etc.
- Replacement of damaged shower heads

The above type of work shall be undertaken by an "Approved Plumber" (with full membership of WIAPS or equal) DLO Technicians or Contractors as appropriate.

The work shall be managed/monitored by the supervisory team.

In instances where the DLO team and/or contractors are not certain that the proposed method of work is compliant with the regulations and or the work falls outside of the above parameters the supervisor shall seek written instruction from the Responsible Person – via the Mechanical Engineer, Compliance & Energy or the Assistant Mechanical Engineer.

Significant changes: existing water systems are to be made or new systems installed. The installer must use the permit system and must provide the Responsible Person with risk assessments and method statements before commencing any work. Detailed drawings must be provided of any changes. The installer must contact the Responsible Person regarding the correct procedure to be adopted for disinfection and or pasteurisation.

The Assistant Mechanical Engineer shall ensure that the records are maintained. Refer to Appendix I, Procedure Repairs to Water Systems

ALL other works (small works, minor works, projects and capital development): shall be undertaken as detailed below:-

The proposed work shall be designed to meet the current BS requirements, the ACOP(s), CIBSE TM13 and the Directorate of Estates and Facilities Procedure & Information Manual EPM PM07 – Code of Practice for Design Teams.

The design shall be detailed on drawings and a specification of work.

The design shall be issued via the RIBA Stage Reporting system for review and comment by the Responsible Person. Amendments shall be incorporated and new drawings and specifications shall be forwarded for record purposes.

The Designer shall ensure that the work is installed in strict accordance with the recorded design

In the event that the design needs to be modified to meet (site conditions) written approval shall be sought from the Responsible Person- the CAD drawings and specification shall be amended to take the approved modifications into account.

Where significant changes to the water system have been made or new systems installed the supervisor shall seek advice from the Responsible Person regarding the correct procedure to be adopted for disinfection and or pasteurisation.

On completion of the works, in addition to ensuring that the relevant CAD drawings, specification, designer Legionella Risk Assessments and maintenance instructions are included in the O&M Manual – the project manager shall issue a further set of documents with a covering letter, to the Assistant Mechanical Engineer for the water management records.

The Assistant Mechanical Engineer shall file the records and bring to the attention of the Responsible Person that the works are completed

Dependent upon the extent of the works the Responsible Person shall

- **Extensive** modifications – arrange for an independent Legionella Risk Assessments to be carried – the cost shall be included and funded by the contract

- **Standard** (small modifications) – arrange for the information to be available for the scheduled review of the Legionella Risk Assessments

The Design Team Guide shall be reviewed annually by the Responsible Person to ensure that it reflects both regulatory and best practice requirements

7.0 Training

An ongoing commitment to training and refresher training shall be adopted.

A "training needs" analysis shall be carried out by the Responsible Person in conjunction with the Legionella Working Group.

The Responsible Person shall annually write to the following stakeholder's to determine who requires training or refresher training

- Assistant Director of Estates and Facilities
- Maintenance Services Unit Manager
- House Services Operations Manager

Training shall be provided via the University of Manchester Staff Training Development Unit and/or specialist consultants, water treatment companies as appropriate – Refer to Training Need Analysis. Refer to Appendix J, Training Needs Analysis

The Maintenance Services Unit Manager: shall in addition to the formal training detailed above arrange for toolbox talks to be carried out for staff engaged on:-

- Water tank maintenance and inspection
- Calorifiers maintenance and inspection
- Miscellaneous water system related topics

8.0 Management Audit and Monitoring

8.1 Audit

The Mechanical Engineer, Compliance & Energy shall carry out a quarterly audit to ensure that all issues have been actioned and that the records are up-to date.

The Audit, utilising the 'Combined Returned Spreadsheet', shall take the form of a 'Draft' Working Group Report to be forwarded to the Responsible Person.

The Responsible Person shall authorise any necessary actions and sign the form and return to Mechanical Engineer, Compliance & Energy.

The audit report together with any associated worksheets shall be filed.

The results of the audit shall be an agenda item for the Legionella Working Group.

8.2 Monitoring /Audit Procedures

Legionella activity sheets shall be date specific and signed by the operative carrying out the procedure. Activities covered, but not limited to, the audit procedure are:-

- Tap and calorifier temperatures
- Shower flush
- Shower disinfection
- Emergency shower and eye wash disinfection
- Tank inspections
- Tank sterilisation
- Little used outlet flush

In the event that the test is not complete the Assistant Mechanical Engineer shall discuss with the respective supervisor and record reason for the delay.

The Assistant Mechanical Engineer shall bring to the attention of the Responsible Person – persistent failure to complete. The Responsible Person shall take these matters up with the senior manager(s) responsible for the area that failed to comply.

8.3 Legionella Information

The Mechanical Engineer, Compliance & Energy shall carry out a monthly audit to check that all records that have been loaned to the Responsible Person have been returned.

9.0 Records

The Assistant Mechanical Engineer shall ensure the records that are subject to the audit process are filed accordingly.

9.1 Legionella Risk Assessments

Shall be carried out – The Responsible Person shall sign each Legionella Risk Assessments and annotate:

- Action required and proposed work stream
- No action required

A record of the completed action/work shall be filed with the Legionella Risk Assessments.

9.2 Schematics

Schematic drawings shall be filed within the Sharepoint filing system.

The schematics shall be updated following approved modifications to existing or new water systems.

9.3 Design Information

Designer Legionella Risk Assessments, drawings, specifications, modifications to design shall following approval by the Responsible Person be forwarded to the Assistant Mechanical Engineer for filing.

9.4 Signed Maintenance/ Inspection Worksheets

Completed, worksheets for water tanks, calorifiers, pipe modifications etc. shall be countersigned by the supervisor, then forwarded to the Assistant Mechanical Engineer for audit and filing.

9.5 Tap Temperature Measurement Records

The monthly tap temperature measurement sheets shall be issued on the 1st working day of each month.

The completed worksheets shall be returned to the Assistant Mechanical Engineer by no later than the 14th of each month for audit and filing.

9.6 Shower and Little Used Flushing Records

The monthly shower and little used sheets shall be issued on the 1st working day if each month.

The completed worksheets shall be returned to the Assistant Mechanical Engineer by no later than the 14th of the following month for audit and filing.

9.7 Minutes of Meetings

Minutes of the Legionella Working Group, 6 monthly meetings shall be taken, distributed and forwarded to The Assistant Mechanical Engineer for filing.

9.8 Report(s) - (6 monthly) to the Duty Holder's Representative

A copy of the 6 monthly reports shall be forwarded to the Assistant Mechanical Engineer for filing.

9.9 Management by Exception Report(S)

A copy of the 6 monthly reports shall be shall be forwarded to the Assistant Mechanical Engineer for filing.

9.10 Record Longevity

The records shall be held for a minimum period of 7 Years.

9.11 Record Location

Until the end of December 2015 all records were held in paper format in Beyer Building. All these documents have now been processed by an external document management company (Iron Mountain). This involved scanning all documents to individual 'building' folders which are available on an external hard drive and backup drive. In addition all original documents will be retained, in secure storage, by Iron Mountain for a minimum of 12 months after scanning.

All documents post December 2015 are retained in electronic format in 'Sharepoint' under 'PSU Compliance'.

10.0 Other water systems

The Directorate of Estates and Facilities Responsible Person shall (if requested) endeavour to provide best advice to colleagues responsible for School/institute water systems

Appendices

Appendix	Title
A	Funding request for essential works
B	Legionella Risk Assessment Process
C	Tank Inspection Process
D	Tap Temperature Monitoring Process
E	Domestic Water Temperatures – Monthly Record
F	Shower Flush and Little Used Outlet Flushing Process
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I	Procedure for Repair/Modifications to Water Systems
J	Training Needs Analysis
K	Legionella Management Structure

APPENDIX A

Professional Services

FUNDING REQUEST FOR ESSENTIAL WORKS

Requestor:	Date:

Building:

Description:

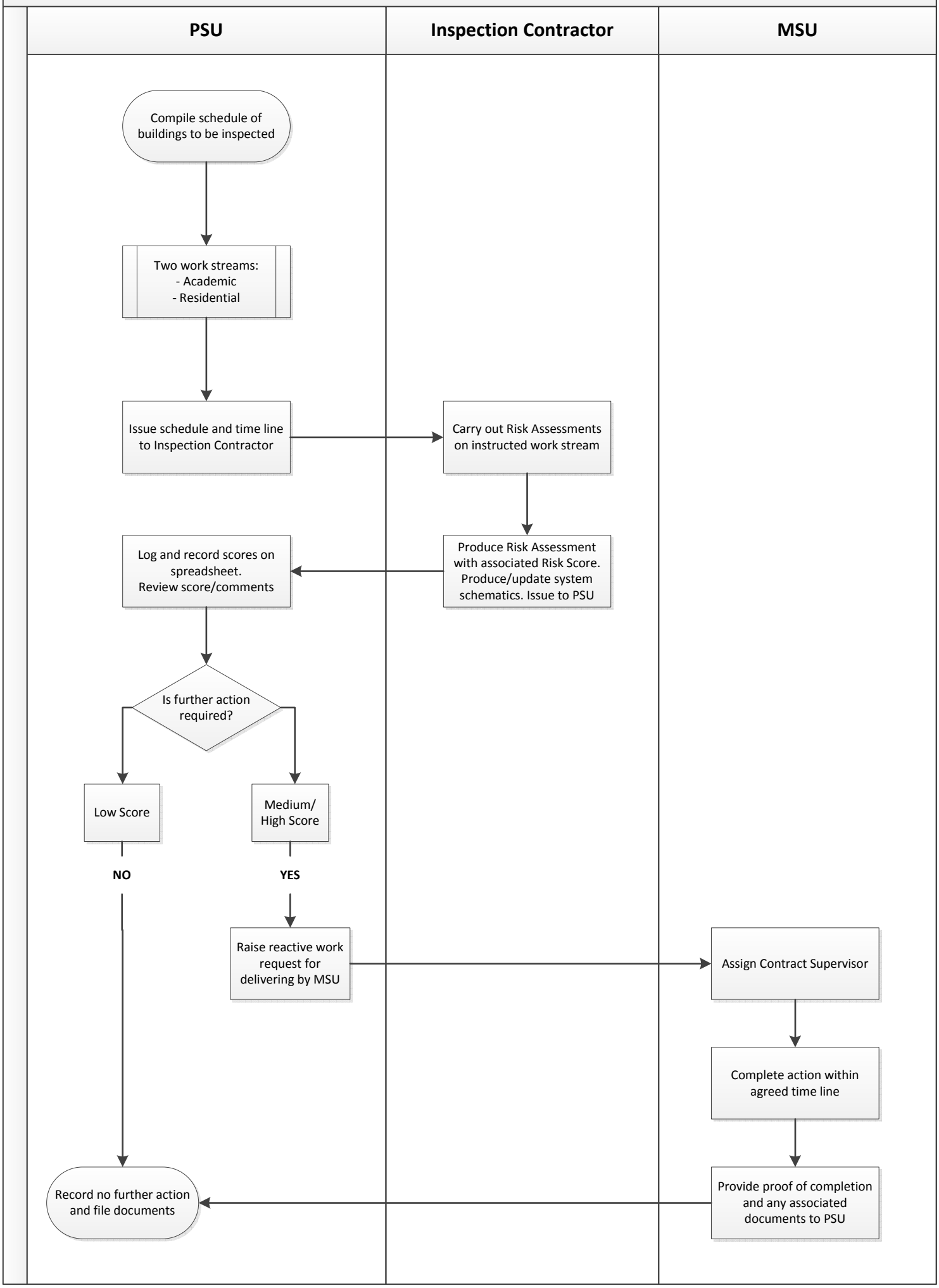
Consequence:

Signed: …….. Date:…….

(Responsible Person)

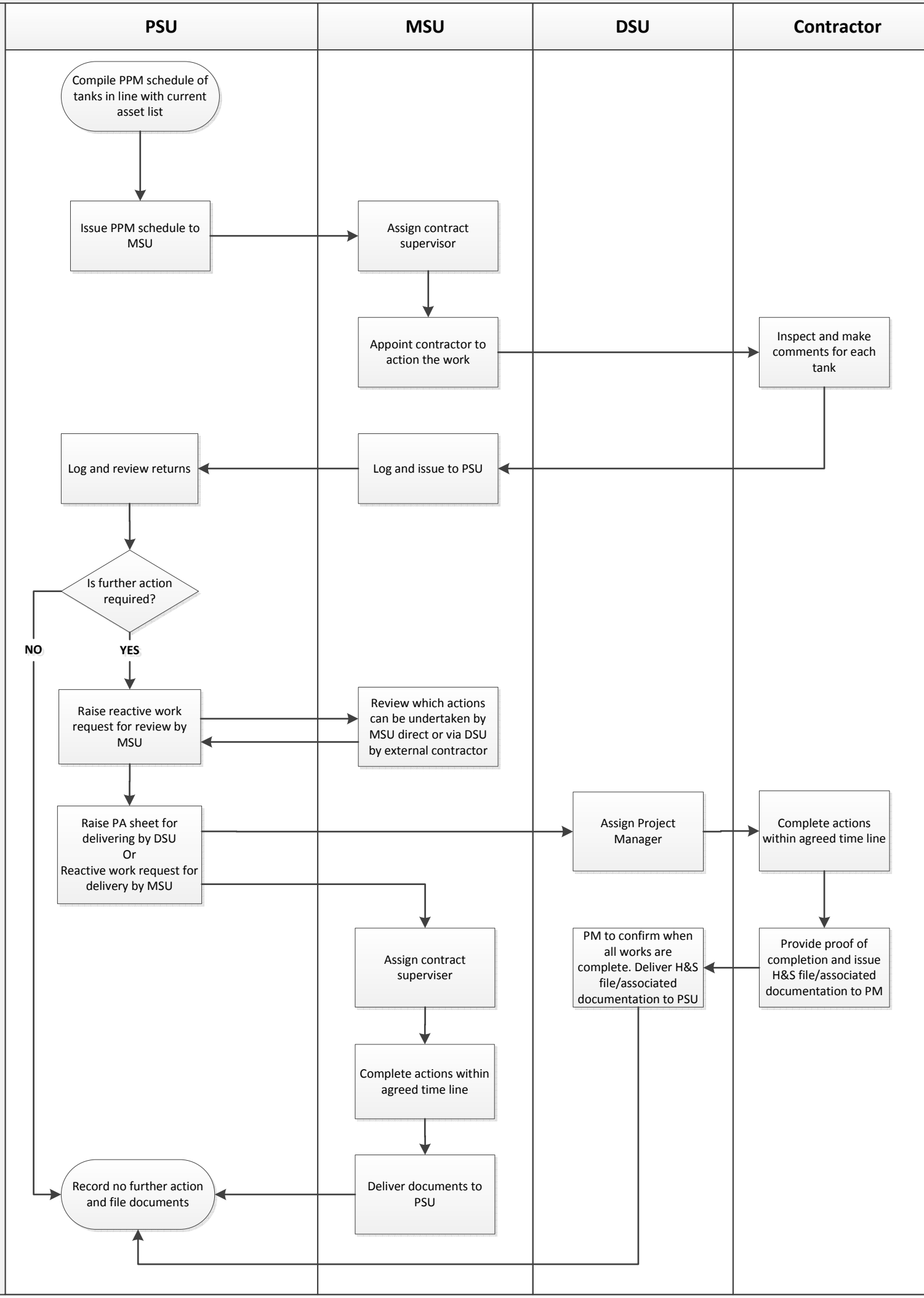
Approved (PSU Manager) Date:

APPENDIX B **Legionella Risk Assessment Process**

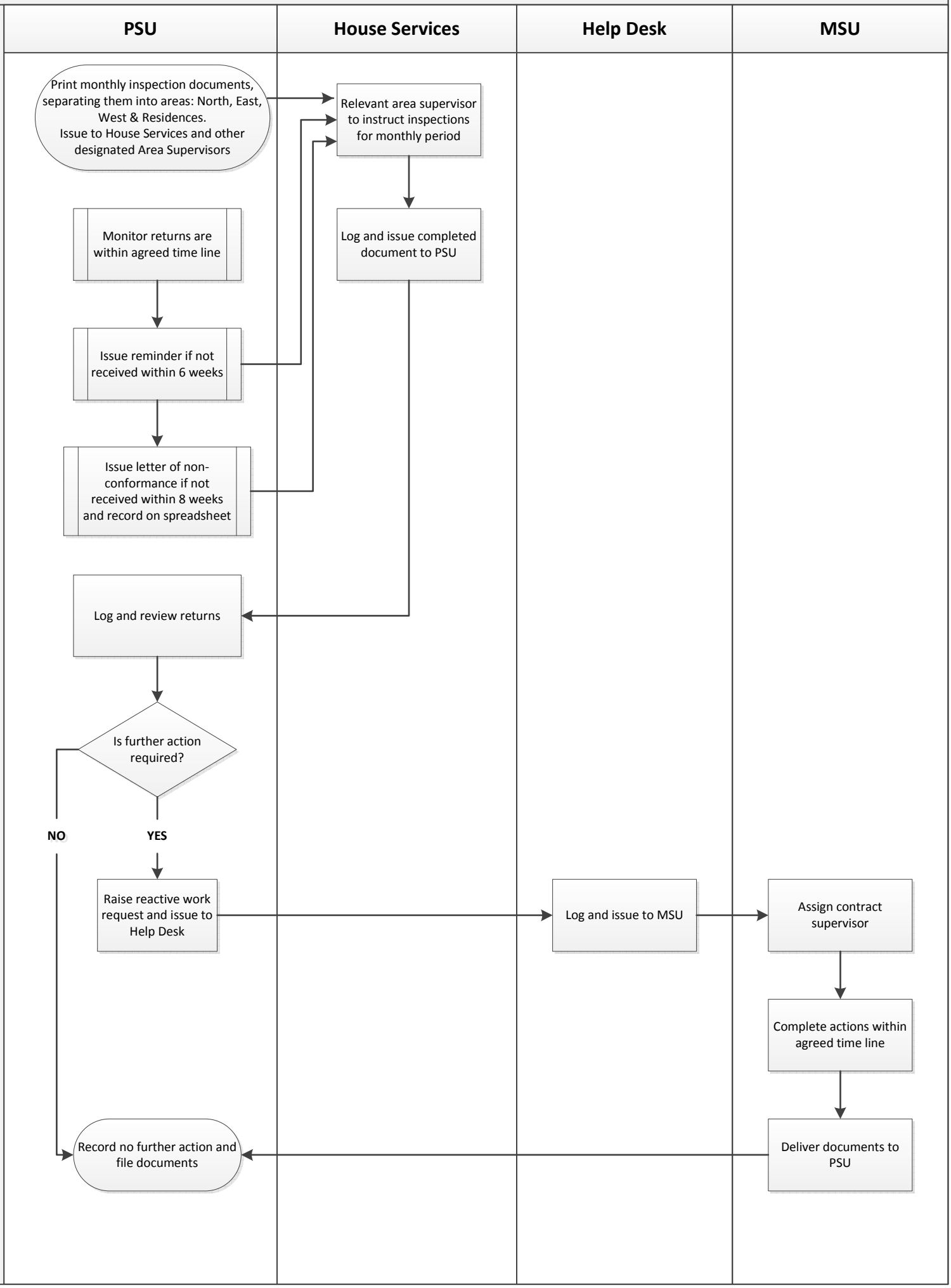


APPENDIX C

Tank Inspection Process



APPENDIX D **Tap Temperature Monitoring Process**



APPENDIX E

PROFESSIONAL SERVICES UNIT
DOMESTIC WATER TEMPERATURES
MONTHLY RECORD

BUILDING NUMBER/NAME TO BE INSERTED

DATE…… TIME…….

Please ring plant operators, extension ******* to obtain Calorifier temperatures and record below

Calorifier / Ht. Exchanger Flow Temperature		°C
Calorifier / Ht. Exchanger Return Temperature		°C

Please report to your supervisor immediately if **temperature is below 50ºC**
Please obtain and record hot and cold water tap temperatures listed below:

Method: Run hot water tap for 1 minute take and record temperature
Run cold water tap for 2 minutes take and record temperature

LOCATION	**HOT TAP TEMP °C**	**COLD TAP TEMP °C**	**COMMENTS**
SENTINEL POINT TO BE INSERTED			
SENTINEL POINT TO BE INSERTED			
SENTINEL POINT TO BE INSERTED			
RANDOM TAP CHECK LOCATION			

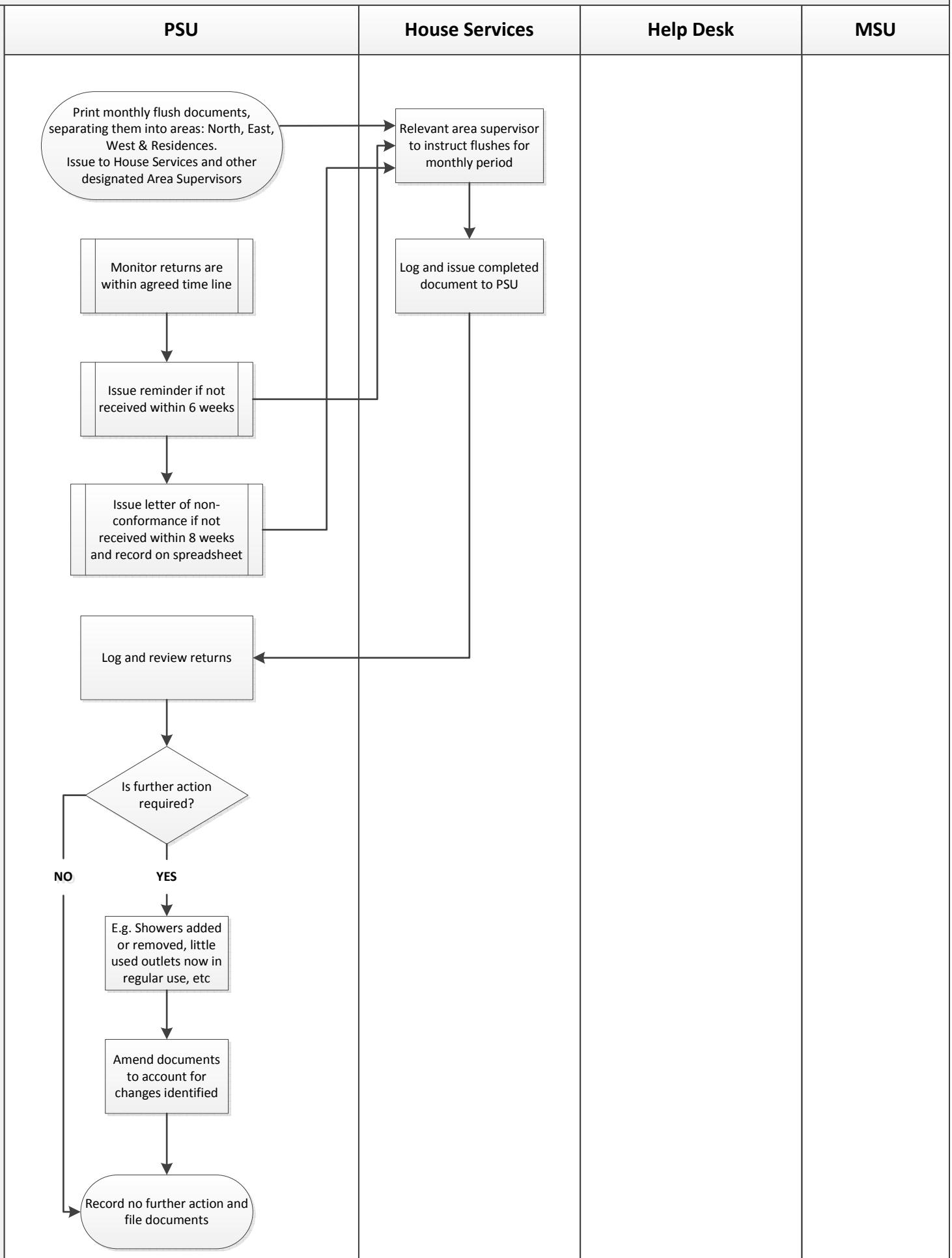
Signature……

This document to be returned to Administrator (Mechanical), PSU, 4th Floor, Beyer Building

OFFICE USE ONLY: WORK ORDER REQUESTS: SYSTEM/ LOW/MED/HIGH PRIORITY
TEMPERATURE FAULTS LISTED ABOVE:

FAULT / ACTION	PRIORITY	DATE ISSUED	DATE COMPLETED

APPENDIX F **Shower Flush & Little Used Outlet Flushing Process**



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PROFESSIONAL SERVICES UNIT

LITTLE USED OUTLET FLUSHING

MONTHLY RECORD

BUILDING NUMBER/NAME TO BE INSERTED

PLEASE RUN THE HOT AND COLD WATER FOR 3 MIN EACH MONDAY MORNING.

ROOM NUMBER	ROOM NAME	OUTLET TYPE

MONDAY DATE…… SIGN……..

MONDAY DATE…… SIGN……..

MONDAY DATE…… SIGN……..

MONDAY DATE…… SIGN……..

MONDAY DATE…… SIGN……..

ON THE LAST MONDAY IN EACH MONTH RETURN THIS SHEET TO:-

Administrator (Mechanical), PSU, 4th Floor, Beyer Building

APPENDIX H

PROFESSIONAL SERVICES UNIT

SHOWER FLUSHING

MONTHLY RECORD

BUILDING NUMBER/NAME TO BE INSERTED

NUMBER AND LOCATION OF SHOWER HEADS TO BE INSERTED

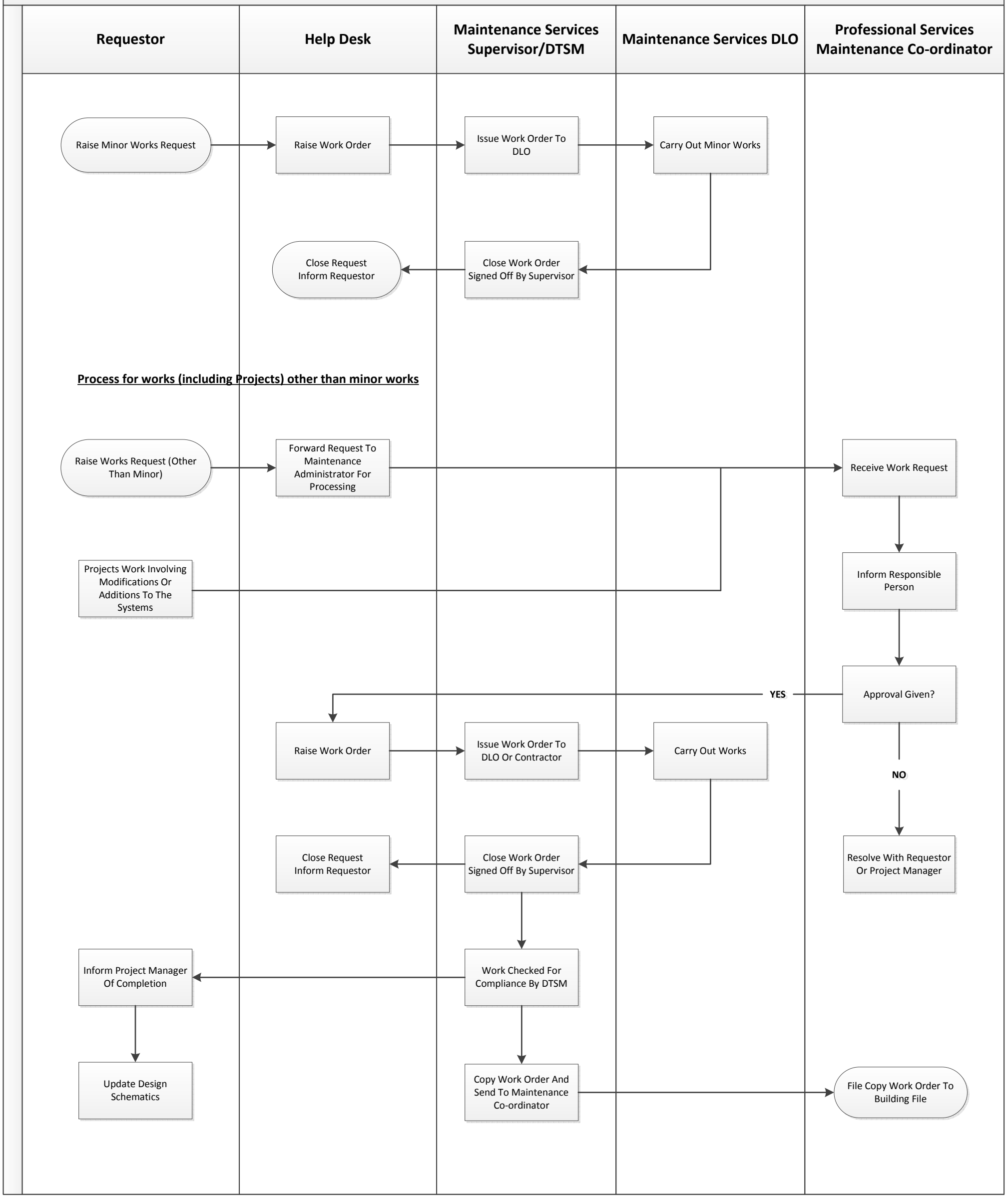
PLEASE RUN THE SHOWER UNITS IN ABOVE ROOMS FOR 2 MIN EACH MONDAY MORNING.

MONDAY	DATE…….…….	SIGNATURE……..
MONDAY	DATE…….…….	SIGNATURE……..
MONDAY	DATE……..……	SIGNATURE……..
MONDAY	DATE…….…..……	SIGNATURE……..
MONDAY	DATE……..……	SIGNATURE……..

ON THE LAST MONDAY IN EACH MONTH RETURN THIS SHEET TO:-

Administrator (Mechanical), PSU, 4th Floor, Beyer Building

APPENDIX I — **Procedure for Repairs/Modifications to Water Systems**



Appendix J

The Management and Control of Legionella
Training Needs Analysis

Level 6: – Legal and managerial

Who	Numbers	What	Where/by whom	When
Duty Holder's Representative Responsible Person Deputy Responsible Person Deputy Director of Estates Assistant Director of Estates Maintenance Services Manager Technical Services Manager DTSM House Services Manager Head of Capital Works Design Services Manager Support Services Group Manager?	1 1 1 1 1 1 2 4 1 1 1 ?	• Basic awareness of legionella • Understanding of the legal responsibilities for the management of legionella • The management and control of legionella with regard to: o Risk assessments o Cooling tower systems o Potential problems o Maintenance of water systems o Chemical controls in cooling tower systems o Principles of design of water o Tap temperature measurement o Record of actions o Audit of compliance o Accountability • Understanding the U of M policy, procedure and guidance document and the respective roles and responsibilities of the individual post identified in the document	TBD	June 07 – *If course available*

Level 5: Management and Design

Who	Numbers	What	Where/by whom	When
Responsible Person Deputy Responsible Person Capital Works Project Managers Design Services – Mechanical and Building designers DTSM Engineering supervisors Building supervisors	1 1 ? ? 4 8 3	• Basic awareness of legionella • Understanding of the legal responsibilities for the management of legionella • The management and control of legionella with regard to: o Risk assessments o Cooling tower systems o Potential problems o Maintenance of water systems o Chemical controls in cooling tower systems o Principles of design of water o Tap temperature measurement o Record of actions o Audit of compliance o Accountability • Understanding the U of M policy, procedure and guidance document and the respective roles and responsibilities of the individual post identified in the document	TBD	June 07 – *If course available* *Morning session*
		• Design of water systems to ensure compliance with ACOPS and CIBSE TM 13 • Procedure for approval of design and the management of contractors on site		Afternoon session

Level 4: Management, maintenance and legionella control in cooling tower systems

Who	Numbers	What	Where/by whom	When
Responsible Person Deputy Responsible Person DTSM – Engineering Engineering Supervisors Shift Plant Operators	1 1 4 8 12	• Basic awareness of legionella • Inspection of Cooling Towers • Control Chemicals and correct dosage • Reporting procedures • The role of the specialist water company • Understanding the U of M policy, procedure and guidance document and the respective roles and responsibilities of the individual post identified in the document	TBD	ASAP

Level 3: Management, inspection of water storage tanks, calorifiers and multi-point heaters

Who	Numbers	What	Where/by whom	When
Responsible Person Deputy responsible Person DTSM (s) Engineering Supervisors Min Number DLO Technicians Max (potential/future) DLO Technicians	1 1 2 8 20 60	• Basic awareness of legionella • Maintenance procedures for o Water Tanks o Calorifiers o Multi-point heater o General plumbing installations • Understanding the U of M policy, procedure and guidance document and the respective roles and responsibilities of the individual post identified in the document	TBD	ASAP

Level 2: Legionella Awareness and Tap temperature measurement – for technical staff

Who	Numbers	What	Where/by whom	When
Managers not included in (level 1-4 training) Supervisors not included in (level 3 or 4 training) DLO technicians (not included in level 3 and 4 training) DLO Plant Operators (not included in level 3 and 4 training) STARS handy-persons	60 ? ? ? ?	• Basic awareness of legionella • Tap Temperature measurement • General plumbing and work on water systems • Understanding the U of M policy, procedure and guidance document and the respective roles and responsibilities of the individual post identified in the document	TBD	ASAP

Level 1: Legionella Awareness and Tap temperature measurement – for non technical staff

Who	Numbers	What	Where/by whom	When
House Services Manager Deputy Manager Building Superintendents Asst Bld. Superintendents Building Attendants Cleaners? Porters Contract Staff Other Building Central Estates Manager Others identified by above	 1 1 ? ? ? ? ? ? 1 ?	• Basic awareness of legionella • Tap Temperature measurement • Understanding the U of M policy, procedure and guidance document and the respective roles and responsibilities of the individual post identified in the document	TBD	ASAP

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LEGIONELLA MANAGEMENT STRUCTURE

Site name	Beyer Building
Site address	The University of Manchester Oxford Road Manchester M13 9PL
Site telephone	0161 275 2000

	Department	**Position**	**Address/ Tel No.**
Statutory Duty Holder.	Office of the President and Vice-Chancellor	President and Vice Chancellor	The University of Manchester Oxford Road Manchester M13 9PL
Duty Holders Representative	Directorate of Estates and Facilities	Director of Estates	The University of Manchester Oxford Road Manchester M13 9PL
Responsible Person	PSU	University Mechanical and Energy Engineer	The University of Manchester Oxford Road Manchester M13 9PL
Deputy Responsible Person	PSU	Assistant Compliance Engineer or Mechanical Engineer, Compliance & Energy	The University of Manchester Oxford Road Manchester M13 9PL
Water Treatment Company	N/A	Regional Consultant Legionella Risk Assessor	Feedwater Ltd Tarran Way Moreton Wirral CH46 4TU
Personnel Responsible For Weekly Mechanical Maintenance/Monitoring	MSU	Maintenance Services Manager Assistant MS Managers Operational Staff	The University of Manchester Oxford Road Manchester M13 9PL
Maintenance Administrator	PSU	Administrator (Mechanical)	The University of Manchester Oxford Road Manchester M13 9PL