
Legionella Risk Assessment and Water Hygiene Survey

Site: Arches Housing Limited



Customer: Block 1 – 12 Colchester House

Date of Assessment: 01 February 2021

Risk Assessor: D Roden

Risk Assessor Signed: *D Roden*

Consultant: Holly Jackson

Client:

Consultant Signed: *H Jackson*

Date:

Date Typed: 16/02/2021

Signed:

Compliance Checked: 09/03/2021

Compliance Signed: *G Davis*

Advisory Review Date: February 2022

When does this document need to be reviewed? See Section 3 and Appendix 7.

General Environmental Services Ltd.

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Customer: Arches Housing Limited

Customer Address: Arches Housing Limited
122 Burngreave Road
Sheffield
S3 9DE

Customer Contact: Sally Steade
Telephone: 07970421493

Site: Block 1-12 Colchester House
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Crookes
Sheffield
S10 1TA

Site Contact:
Site Telephone:

GES Account Manager: Holly Jackson
Mobile: 01226 397681
Email: hjackson@ges-water.co.uk

Address: GES Water
Unit 10a
Goldthorpe Industrial Estate
Commercial Road
Rotherham
S63 9BL

Telephone: 01226 397663

Management Personnel

Statutory Site Duty Holder

A senior executive with budgetary control who ensures that the operation complies with the law, by appointing and overseeing a competent Responsible Person. All appointments should be made and accepted in writing. The Duty Holder cannot delegate his / her duty, but can delegate managerial responsibility to the Nominated Responsible Person.

Nominated Responsible Person

Individual appointed with, and who has accepted, responsibility under the authority of the duty holder for ensuring that the organization's responsibilities for the control of *Legionella* are met and that all individuals and organizations assigned to carry out tasks in the scheme of *Legionella* control are competent to do so. A member of staff sufficiently senior to hold the budget.

This person would report to the statutory site duty holder and have day-to-day responsibility for ensuring that operational duties are carried out in a timely and effective manner and ensuring the adequate training and competence of themselves, operational staff and any contractors or subcontractors. This person should also be responsible for the accurate audit of the Site Log Book.

Operational Staff

Staff whose duties include inspection, monitoring, implementing, record keeping and carrying out remedial actions. There should be adequate record of their on-going training and regular assessment of their competence.

Service Providers

For example: risk assessors, monitoring companies, consultants, and contractors carrying out such duties as water treatment and cleaning and disinfection. Information should also be available to show the competence of individuals and the contact details of all relevant personnel within the service provider company.

The Client should satisfy himself that:

- each of the above can be clearly identified
- that they are aware of contact details of others in the chain of command
- each role has a competent deputy identified
- that each post has been accepted in writing
- that there is a separate sheet for each position showing training records and competency assessment.

It is the responsibility of the Nominated Responsible Person to ensure that Log Books are kept up to date and those actions are implemented

Nominated Authorities

		Name	Position	Tel No.
Statutory Site Duty Holder		TBC		
Nominated Responsible Person		TBC		
Deputy Nominated Responsible Person		TBC		
Operational Staff See previous page; list all relevant	A			
	B			
	C			
	D			
Service Providers See previous page; list all relevant				
Company: GES Water	A	Holly Jackson	Environmental Consultant	01226 397660
	B			
	C			

Remedial Action Required	Yes	Action Reference. RRK1-Every site must have a clearly defined plant management structure with responsible persons nominated for each task. All site staff involved in the management of the system(s) should be recorded within the site log book (Allocation of Responsibilities)
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The overall site risk summary considers the system surveyed as a whole, and gives an “at a glance” view of conditions and the likely hood for Legionella bacteria to represent an infection risk to humans. The summary will also conclude the potential lowest (or, residual) risk possible if all recommendations in the assessment are completed.

(Scoring: Low Risk = 1, Medium Risk = 2, High Risk = 3, Very High Risk = 4)

1. Contamination (of the water supply):		Comment:-	
a. Incoming water quality		Good and clear in appearance.	
b. Incoming water temperature(s)		10 degrees.	
c. Potential contamination of the water supply e.g. backflow.		None seen.	
d. Any existing control measures in place?		Improvements required.	
Inherent Risk		2	Residual Risk
<i>Risk before any action, and with present controls in place.</i>			<i>Risk if all actions are completed and control program instigated.</i>
			1

2. Amplification (conditions that can support Legionella growth):		Comment:-	
a. Temperature profile of water		C02,03,07,08,09,10 all non compliant. Cold temperatures satisfactory.	
b. Water change (turnover) rate		All flats in use. Although in all flats the calorifiers are too big in each flat for their usage.	
c. Dead leg/ends		None.	
d. High risk temperature zone 32-40°C (not thermostatically controlled outlets)		Flat 3 – 35 degrees.	
e. Materials of construction		Flexi hoses tenants mentioned black bits coming out of taps on further inspection, this could be flexi hoses deteriorating.	
f. Suitability of existing control program		Improvements required.	
Inherent Risk		3	Residual Risk
<i>Risk before any action, and with present controls in place.</i>			<i>Risk if all actions are completed and control program instigated.</i>
			1

3. Aerosols, or water droplets likely to form and spread:	Comment:-		
a. Outlets likely to form aerosols	Showers in each flat.		
b. Will aerosols be contained	Yes.		
c. How far are these likely to spread	Bathroom only.		
d. Suitability of existing control program	None seen.		
Inherent Risk			
<i>Risk before any action, and with present controls in place.</i>	3	Residual Risk	
		<i>Risk if all actions are completed and control program instigated.</i>	3

4. Exposure (are Aerosols, or droplets, likely to be inhaled):	Comment:-		
a. Are aerosols likely to be inhaled	Yes.		
b. Is contaminated water likely to be aspirated	Unlikely.		
Inherent Risk			
<i>Risk before any action, and with present controls in place.</i>	2	Residual Risk	
		<i>Risk if all actions are completed and control program instigated.</i>	2

5. Susceptibility of Individuals:		Comment:-	
a. Is the exposed population vulnerable to Legionella infections?		Tenants are of an elderly age and are at a higher risk of susceptibility.	
Inherent Risk		3	Residual Risk
<i>Risk before any action, and with present controls in place.</i>			<i>Risk if all actions are completed and control program instigated.</i>
			3

6. Conclusion:		Advisory assessment review period based on (Inherent) Risk**	
Low Risk	= 5 - 6	5 Years	
Low/Medium Risk	= 7 - 8	4 Years	
Medium Risk	= 9 - 10	3 Years	
Medium/High Risk*	= 11 - 12	2 Years	
High Risk*	= 13 - 14	1 Year	
Very High Risk*	= 15 - 16	1 Year (< 1 year if failures in control)	
<u>OVERALL SITE RISK (score from 1-5 above)</u>			
Inherent Risk		13	Residual Risk
<i>Risk before any action, and with present controls in place.</i>			<i>Risk if all actions are completed and control program instigated.</i>
			10
**These timeframes are advisory, any failures in control, or changes as identified in Appendix 7 will require a higher frequency of re-inspection.			

Preparation, Appraisal of Maintenance / Testing / Monitoring & Management:-			
	Yes	No	N/A
Is there a site Log Book?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Details (physical or electronic etc.): Physical			
Action Required: N/A --			
Does the assessment include an asset register?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are there schematic drawings of the water system(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have any Legionella Audits been completed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is there a current Legionella control program in place? <i>(if Yes see section 6a)</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have tasks detailed in the current control program all been completed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Have completed tasks all been signed by competent personnel?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Has the current control program been successful in managing Legionella on site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do control parameters defined comply with HSG274	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have any adverse results (including Microbiological samples) that may have occurred been dealt with appropriately?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is there a formal written control scheme for Legionella control?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comment/Details:			
Action Required: N/A			
Is someone responsible for maintaining the Log Book?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has the duty holder, competent person and any deputies been identified in the written scheme of control?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Has the appointment of the competent person(s) been confirmed in writing by the duty holder?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Have competent person(s) and parties (e.g. consultants, FM companies, or water treatment companies) defined with contact details that are readily available? <i>(This may be kept in an allocation of responsibilities document).</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Have lines of communication and reporting structure been clearly defined?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Comment/Details:			
Action Required: We recommend that the logbook contains a written monitoring/maintenance/treatment schedule, method statements and a written control scheme with actions to be taken in response to monitoring results.			

Appraisal of Current Scheme of Control:-			
	Yes	No	N/A
Considering the current Legionella control scheme in place is this adequate? <i>(if No see Section 6b for advised scheme of control)</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
No foreseeable risk was noted during our survey.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Comment/Details:			

Appraisal of Competency and Training:-			
	Yes	No	N/A
Are training records available for those identified with an involvement in the scheme of control?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is the training relevant and valid to the tasks being undertaken?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Are there method statements available for the tasks being undertaken and are they sufficient?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is monitoring equipment calibrated, or suitable for the task(s)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Comment/Details:			
Action Required: We strongly recommend that those personnel involved in the control and maintenance of the systems undertake Legionella awareness training.			

The following items have been noted as requiring remedial actions.
A risk category has been assigned to each remedial as following:

High	Action Required Immediately
Medium	Action Required Within 3 months
Low	Action Required Within 12 months
	<i>Other remedial actions for good practice are given without a risk rating.</i>

Key to Codes for Action References

RRK	Records/Management/Training	RHC	Hot & Cold Water Services
RCW	Cold Water Storage Tanks	RS	Showers
RC	Calorifiers	RORS	Other Risk Systems
RWH	Water Heaters	RDL	Dead-Leg / Ends Register

Action Reference is to help quickly reference any issue in your report, rather than quoting the whole recommendation.

Action(s) Required Record from Desk Top Audit

Action Reference	Recommendation(s)	Reference(s)	Risk	Completed	Signed / Date
RRK1	Every site must have a clearly defined plant management structure with responsible persons nominated for each task. All site staff involved in the management of the system(s) should be recorded within the site logbook. We would strongly advise that clear responsibility pathways are established and maintained and that regular training reviews be arranged to ensure compliance.		HIGH		
RRK4	We recommend that the logbook contains a written monitoring/maintenance/treatment schedule, method statements and a written control scheme with actions to be taken in response to monitoring results.				
RRK5	We strongly recommend that those personnel involved in the control and maintenance of the systems undertake Legionella awareness training.				

Action(s) Required for Cold Water Storage Tank(s)

Action Reference	Recommendation(s)	Location(s)	Risk	Completed	Signed / Date
RCW2a	ACoP L8 4th edition places emphasis on ensuring that water storage is calculated in order to avoid over capacity. Excessive storage should be avoided, generally not more than one day's use. We recommend that actions be taken to reduce the quantity of stored water. Guidance on suggested levels of hot and cold water storage are given in BS8558:2012.	T13	HIGH		

Action(s) Required for Cold Water Storage Tank(s)					
Action Reference	Recommendation(s)	Location(s)	Risk	Completed	Signed / Date
RCW8	The open vent(s) from the Calorifier(s) terminated through the lid of tank This/these should be diverted away from the tank to separate drain via Tundish to meet ACoP L8 4th edition.	T01-12	MEDIUM		
RCW11a	Install suitable thermal insulation to the *tank *its lid, *make up and *outlet pipe work in compliance with the Water Supply (Water Fittings) Regulations 1999 to avoid excessive stored and piped water Temperatures.	T13			
RCW18	On a six-monthly basis, check tank water temperature remote from the make-up and stored water. Temperatures should be below 20oC and no greater than 2oC difference between the two values. Record in site logbook.	All CWST's			
RCW19	Cold water storage tank should be visually inspected on an annual basis. The tanks should be maintained free from debris or contamination.				

Action(s) Required for Cold Water Storage Tank(s)					
Action Reference	Recommendation(s)	Location(s)	Risk	Completed	Signed / Date
RCW9	Label tank(s) to clearly identify asset number(s) / name(s).	All CWST's	LOW		
RCW10	Clearly identify pipe work by labelling the inlet and outlets and flow direction on tank(s).				

Action(s) Required for Calorifier(s) (Direct or Indirect.					
Action Reference	Recommendation(s)	Location(s)	Risk	Completed	Signed / Date
RC1	Check and record Calorifier flow and return temperatures monthly (or as defined in the risk assessment and stated in Section 6b). Adjust thermostats as appropriate, to ensure minimum storage temperatures of 60°C and secondary circulation return (where applicable) of at least 50°C	C01-13	HIGH		
RC7b	Overcapacity of hot water. Review for current occupancy				

Action(s) Required for Calorifier(s) (Direct or Indirect.					
Action Reference	Recommendation(s)	Location(s)	Risk	Completed	Signed / Date
RC6	Label the Calorifier(s) to clearly identify asset number/name. In addition ensure flow and return pipe work are labelled. This aids identification with regards to record keeping.	C01-13	MEDIUM		

Action(s) Required for Hot and Cold Water Service(s).

Action Reference	Recommendation(s)	Location(s)	Risk	Completed	Signed / Date
RHC1	Implement a programme of temperature monitoring in accordance with ACOP L8 4th edition guidelines. Please see Checklist 2 (RA02) in the Appendix section of this report. Consideration should be given to an automated system, this can demonstrate greater control than the ACoP L8 4th edition recommendations. For guidance on the advised frequency for this site see Section 6B.	See Section 6b for advised locations and frequencies	HIGH		
RHC1a	Investigate non-complaint temperatures found during the survey	See Section 11			
RHC3	Formerly identify disused or little used outlets and implement a regime of weekly flushing and logging (taking care not to create aerosols). An on-going review of outlets that require flushing should be completed and amended as necessary, adding and removing as required. . Consideration should be given to an automated flushing system (if it is not practical to complete manually), consult GES for further information and guidance. Addition: If in a healthcare environment flushing must be completed twice weekly	Where any flats are left for vacant for over 1 week			
RHC4	Remove spray inserts/taps where possible, alternatively ensure outlets are cleaned and disinfected as required and kept free from deposits.	Various Outlets Throughout			

Action(s) Required for Hot and Cold Water Service(s).

Action Reference	Recommendation(s)	Location(s)	Risk	Completed	Signed / Date
RHC6	Taps in some areas were scaled. Outlets should be cleaned and disinfected as required and kept free from deposits.	Various Outlets Throughout	MEDIUM		
RHC8	We recommend implementing/reviewing the bacterial sampling regime to ensure all systems and high risk areas are checked.	Discuss numbers and locations with water hygiene supplier			
RHC12	It is recommended that flexible hoses are removed from the system. Flexible hoses can contain rubber inner lining that can be a breeding ground for bacteria. Copper hard piping is preferred.	See Section 11			

Action(s) Required for Hot and Cold Water Service(s).

Action Reference	Recommendation(s)	Location(s)	Risk	Completed	Signed / Date
RHC7	Label outlets to warn users of hot water. If users are at risk from being scalded by very hot water consideration should be given to the installation of thermostatic mixing valves.	Various Outlets Throughout	LOW		

Action(s) Required for Shower(s).

Action Reference	Recommendation(s)	Location(s)	Risk	Completed	Signed / Date
RS4	Showerheads were able to reach below normal bath water level creating a potential back flow risk. check to ensure appropriate back flow prevention is built-in, or a suitable restraint should be fitted to restrict the movement of the showerhead.	Flats 3,6,8,9,10	HIGH		
RS3	Dismantle, descale, clean and disinfect showerheads and hoses on a quarterly basis (or as defined in the risk assessment and stated in Section 6b).	All Showers	MEDIUM		

Action	Carried Out by GES	Carried Out by Site	Carried Out by Other	Not Carried Out
Monitoring Sentinel Outlets				NCO*
Monitoring Outlet Temperatures				NCO*
Monitoring Calorifier Flow & Return Temperatures				NCO
Monitoring Water Tank incoming and Stored Water Temperatures				NCO
Monitor Water Heater Temperatures				N/A
Microbiological Monitoring				NCO
Legionella Sampling				NCO
Inspection of Cold Water Storage Tanks				NCO
Clean and Disinfection of Cold Water Storage Tanks				NCO
Servicing of Water Softeners				N/A
Disinfection of Water Softeners				N/A
Showerhead Descale & Disinfection				NCO
Descaling & Disinfection of Taps				NCO
Calorifier/ Water Heater Inspection / Blowdown				N/A
Flush & purge to drain expansion vessels				N/A
Low-use Outlet Flushing				NCO
Monitoring of Pre-Treatment Methods				N/A
TMV Servicing				N/A
Inline Strainers Regularly Cleaned				N/A
Other				N/A

Key for above table

*records and monitoring not sufficient

Daily	Weekly	Monthly	Quarterly	4 Monthly	6 Monthly	Annually	Continuously i.e. wireless monitoring/OR BMS	Not carried out	Not applicable
D	W	M	Q	4	6	A	C	NCO	N/A

Action	Advised Y/N	Frequency	Action Reference
Monitoring Sentinel Outlets	Yes	M	RHC1
Monitoring Outlet Temperatures	Yes	A	RHC1
Monitoring Calorifier Flow & Return Temperatures	Yes	M	RC1
Monitoring Water Tank incoming and Stored Water Temperatures	Yes	6	RHC1 & RCW18
Monitor Water Heater Temperatures	N/A		
Microbiological Monitoring**	Yes	A	RHC8
Legionella Sampling**	Yes	A	RHC8
Inspection of Cold Water Storage Tanks	Yes	A	RCW19
Clean and Disinfection of Cold Water Storage Tanks	Yes	As req	
Servicing of Water Softeners	N/A		
Disinfection of Water Softeners	N/A		
Showerhead Descale & Disinfection	Yes	Q	RS3
Descaling & Disinfection of Taps	Yes	As req	RHC6
Calorifier/ Water Heater Inspection / Blowdown	N/A		
Flush & purge to drain expansion vessels	N/A		
Low-use Outlet Flushing *	Yes	W*	RHC3
Monitoring of Pre-Treatment Methods	N/A		
TMV Servicing	N/A		
Inline Strainers Regularly Cleaned	N/A		
Other	N/A		

Key for above table

*any flats that become vacant for over a week

Daily	Weekly	Twice Weekly *	Monthly	Quarterly	4 Monthly	6 Monthly	Annually	Continuously i.e. wireless monitoring/OR BMS	Not carried out	Not applicable / No further action
D	W	TW	M	Q	4	6	A	C	NCO	N/A / NFA

**** Exact numbers & advised locations to be discussed with your statutory duty holder/responsible person & legionella service provider**

Location: Flat 1						
Floor: Ground			Designation: T01			Action Reference:
Tank Dimensions (M):	H: 0.3	W: 0.3	L: 0.4			
Tank Capacity (L):	75					
Tank Manufacturer/Construction:	Plastic					
Lid Construction:	Plastic			No Lid	<input type="checkbox"/>	
Stagnation:	No	<input checked="" type="checkbox"/>	Yes		<input type="checkbox"/>	
Sediment:	Nil / Light	<input checked="" type="checkbox"/>	Medium	<input type="checkbox"/>	Heavy	<input type="checkbox"/>
Corrosion:	Nil / Light	<input checked="" type="checkbox"/>	Medium	<input type="checkbox"/>	Heavy	<input type="checkbox"/>
Scale:	Nil / Light	<input checked="" type="checkbox"/>	Medium	<input type="checkbox"/>	Heavy	<input type="checkbox"/>
Tank Flow: (inlet/outlet)	Opposed	<input checked="" type="checkbox"/>	Part Opposed	<input type="checkbox"/>	Not Opposed	<input type="checkbox"/>
Inlet(s) & Outlet(s) valved?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>		
Labelling:	Tank	<input type="checkbox"/>	Make-up	<input checked="" type="checkbox"/>	Outlet(s)	<input checked="" type="checkbox"/>
Insulation:	Good	<input checked="" type="checkbox"/>	Average	<input type="checkbox"/>	Poor	<input type="checkbox"/>
Details:						
Overflow Screened?	Yes	<input checked="" type="checkbox"/>	No		<input type="checkbox"/>	
Size of Pipework (mm):	22mm					
Air Vent Fitted?	Yes	<input checked="" type="checkbox"/>	No		<input type="checkbox"/>	
Warning Pipe:	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Warning Pipe Screened?	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Size of Pipework (if applicable):						
Estimated Tank Turnover:	Good	<input checked="" type="checkbox"/>	Average	<input type="checkbox"/>	Poor	<input type="checkbox"/>
Water Meter Present?	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>		
Tank Make-up:	Mains					
Temperature (°C):	Make up:	11	Tank:	11		
Rating:	<20°C	<input type="checkbox"/>	>20°C	<input type="checkbox"/>	>2°C diff.	<input type="checkbox"/>
Inspection Hatch:	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>		
Is Tank Treated?	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>		
Vent discharges into tank?	No	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>		
Booster pumps rotated weekly?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>
Dead-leg or blind end:	No	<input checked="" type="checkbox"/>	Yes		<input type="checkbox"/>	
Is there an expansion vessel on the booster pump?	No	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>		
Is Expansion Vessel fitted correctly?	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Is EV a dead-leg risk?	No	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>
Does tank turnover within 24 hours	Yes	<input checked="" type="checkbox"/>	N/A	<input type="checkbox"/>	No	<input type="checkbox"/>
If Parallel tank configuration, are ball valves synchronised?	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Does tank require replacement?	No	<input checked="" type="checkbox"/>	Yes		<input type="checkbox"/>	
Access Details					Unsafe	<input type="checkbox"/>
* If multiple of the same make & models list designations & locations here:						
Designation:	Location:		Action Reference(s)			
T02 - 12	Flat 2-12		RCW10,8			
Notes:						

Location: Loft Area						
Floor: First			Designation: T13			Action Reference:
Tank Dimensions (M):	H: 0.4	W: 0.4	L: 0.6			
Tank Capacity (L):	250 Litres					
Tank Manufacturer/Construction:	Plastic					
Lid Construction:	Plastic			No Lid	<input type="checkbox"/>	
Stagnation:	No	<input checked="" type="checkbox"/>			Yes	<input type="checkbox"/>
Sediment:	Nil / Light	<input checked="" type="checkbox"/>	Medium	<input type="checkbox"/>	Heavy	<input type="checkbox"/>
Corrosion:	Nil / Light	<input checked="" type="checkbox"/>	Medium	<input type="checkbox"/>	Heavy	<input type="checkbox"/>
Scale:	Nil / Light	<input checked="" type="checkbox"/>	Medium	<input type="checkbox"/>	Heavy	<input type="checkbox"/>
Tank Flow: (inlet/outlet)	Opposed	<input checked="" type="checkbox"/>	Part Opposed	<input type="checkbox"/>	Not Opposed	<input type="checkbox"/>
Inlet(s) & Outlet(s) valved?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>		
Labelling:	Tank	<input type="checkbox"/>	Make-up	<input type="checkbox"/>	Outlet(s)	<input type="checkbox"/>
Insulation:	Good	<input type="checkbox"/>	Average	<input checked="" type="checkbox"/>	Poor	<input type="checkbox"/>
Details:						
Overflow Screened?	Yes	<input checked="" type="checkbox"/>			No	<input type="checkbox"/>
Size of Pipework (mm):	22mm					
Air Vent Fitted?	Yes	<input checked="" type="checkbox"/>			No	<input type="checkbox"/>
Warning Pipe:	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Warning Pipe Screened?	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Size of Pipework (if applicable):						
Estimated Tank Turnover:	Good	<input type="checkbox"/>	Average	<input type="checkbox"/>	Poor	<input checked="" type="checkbox"/>
Water Meter Present?	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>		
Tank Make-up:	Mains					
Temperature (°C):	Make up:	12	Tank:	12		
Rating:	<20°C	<input checked="" type="checkbox"/>	>20°C	<input type="checkbox"/>	>2°C diff.	<input type="checkbox"/>
Inspection Hatch:	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>		
Is Tank Treated?	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>		
Vent discharges into tank?	No	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>		
Booster pumps rotated weekly?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>
Dead-leg or blind end:	No	<input checked="" type="checkbox"/>			Yes	<input type="checkbox"/>
Is there an expansion vessel on the booster pump?	No	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>		
Is Expansion Vessel fitted correctly?	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Is EV a dead-leg risk?	No	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>
Does tank turnover within 24 hours	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
If Parallel tank configuration, are ball valves synchronised?	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Does tank require replacement?	No	<input checked="" type="checkbox"/>			Yes	<input type="checkbox"/>
Access Details					Unsafe	<input type="checkbox"/>
Notes:						

T13 Internal



T13



Typical tank in flats 1-12



Location: Flat 1							
Floor:	*Designation: C01					Action Reference	
Make & Model:	-						
Dimensions (M):	H: 0.9 Ø: 0.45						
Capacity (L):	120 Litres						
Construction:	Copper						
How is it vented?	Into tank						
Heat Source:	Immersion						
Backflow prevention?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	N/A		<input checked="" type="checkbox"/>
Labelling:	Vessel	<input type="checkbox"/>	Make-up	<input type="checkbox"/>	Flow (&return)	<input type="checkbox"/>	
Insulation:	Good	<input checked="" type="checkbox"/>	Poor	<input type="checkbox"/>			
Details:							
Flow Temperature	>60°C	<input type="checkbox"/>	60°C	<input type="checkbox"/>	<60°C	<input type="checkbox"/>	
Return Temperature	>50°C	<input type="checkbox"/>	N/A	<input type="checkbox"/>	<50°C	<input type="checkbox"/>	
Estimated Turnover:	Good	<input type="checkbox"/>	Average	<input type="checkbox"/>	Poor	<input checked="" type="checkbox"/>	
Vessel make up:	T01						
Drain on unit?	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>			
Inspection Hatch:	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>			
Is Anti-Strat pump Fitted?	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>			
Stratification evident?	No	<input checked="" type="checkbox"/>			Yes	<input type="checkbox"/>	
Are dead-ends present?	No	<input checked="" type="checkbox"/>			Yes	<input type="checkbox"/>	
Is there an expansion vessel on the pipe work?	No	<input checked="" type="checkbox"/>	Cold Pipe work	<input type="checkbox"/>	Hot Pipe work	<input type="checkbox"/>	
Is expansion vessel fitted correctly?	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	
Does the expansion vessel present a dead-leg risk?	No	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	
Access details:							
* If multiple of the same make & models list designations & locations here:							
Designation:	Location:	Action Reference(s)					
C02 fed by T02	Flat 2	RC6, RC7b 47°C					
C03 fed by T03	Flat 3	RC6, RC7b 35°C					
C04 fed by T04	Flat 4	RC6, RC7b 60°C					
C05 fed by T05	Flat 5	RC6, RC7b 60°C					
C06 fed by T06	Flat 6	RC6, RC7b 60°C					
C07 fed by T07	Flat 7	RC6, RC7b 50°C					
C08 fed by T08	Flat 8	RC6, RC7b 57°C					
C09 fed by T09	Flat 9	RC6, RC7b 55°C					
C10 fed by T10	Flat 10	RC6, RC7b 56°C					
C11 fed by T11	Flat 11	No access					
C12 fed by T12	Flat 12	RC6, RC7b 61°C					
Notes:							
Calorifiers are over capacity for usage, ideally look into a smaller water heater where no baths are present.							

Location: Bin Store						
Floor:	Ground	*Designation: C13				Action Reference
Make & Model:	-					
Dimensions (M):	H: 1.15	Ø: 0.4				
Capacity (L):	190 Litres					
Construction:	Copper					
How is it vented?	To drain					
Heat Source:	Immersion					
Backflow prevention?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>		
Labelling:	Vessel	<input type="checkbox"/>	Make-up	<input type="checkbox"/>	Flow (&return)	✓
Insulation:	Good	✓	Poor	<input type="checkbox"/>		
Details:						
Flow Temperature	>60°C	✓	68°C	<60°C	<input type="checkbox"/>	
Return Temperature	>50°C	<input type="checkbox"/>	N/A	<50°C	<input type="checkbox"/>	
Estimated Turnover:	Good	<input type="checkbox"/>	Average	<input type="checkbox"/>	Poor	✓
Vessel make up:	T13					
Drain on unit?	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>		
Inspection Hatch:	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>		
Is Anti-Strat pump Fitted?	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>		
Stratification evident?	No	✓			Yes	<input type="checkbox"/>
Are dead-ends present?	No	✓			Yes	<input type="checkbox"/>
Is there an expansion vessel on the pipe work?	No	✓	Cold Pipe work	<input type="checkbox"/>	Hot Pipe work	<input type="checkbox"/>
Is expansion vessel fitted correctly?	Yes	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Does the expansion vessel present a dead-leg risk?	No	<input type="checkbox"/>	N/A	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>
Access details:						
Notes:						

C13



None on site

Section 10 – Hot and Cold Water Services Risk Summary

		<u>Yes/ No?</u>	<u>Action Reference</u>
Are all temperatures compliant at the time of survey?		No	RHC1a
Do TMVs supply multiple outlets?		N/A	
Are there any TMV spurs >1m in length?		N/A	
Are spray inserts present on outlets?		Yes	RHC4
Are low use showers flushed to drain weekly?		N/A	
Scale present on showerheads?		Yes	RS3
Do raised HW temps indicate scald risk		Yes	RHC7
Are flexible hoses present on pipe work?		Yes	RHC12
Are outlets currently labelled?		N/A	
Does exposed pipe work require insulation?		CWS	No
		HWS	No
Are jointing compounds compliant with Water Regulations?		Yes	
Is there any lead pipe work on site?		No	
Is there a risk of backflow contamination of the wholesome water supply?	Can showerheads reach other water services and present a backflow risk?	Yes	RS4
	Washing machine (domestic)?	No	
	Live connection to heating system?	N/A	
	Bib tap(s)?	N/A	
	Process water with inadequate protection to mains water supply?	N/A	
	Care home washing machine?	N/A	
	Other:		
Other:			
Key	Risk	Notes: TMV = Thermostatic Mixer Valve. HWS = Hot Water Services. CWS = Cold Water Services	
	LOW		
	MEDIUM		
	HIGH		

Section 11 – Hot & Cold Water Services

Temperature Data & Asset Register

Building:		Source/ Temps °C			TMV Present / Temps °C	TMV s Isolatable	Thermostatic Shower / taps	Mixer	Filters	In-line Strainers	Dead-leg/end (insert a ✓ or I)	Hose WRAS? Y/N	Low Use	Sentinel Hot	Sentinel Cold	
Locations:		Mains	Tank Fed	HWS												
Rooms	Assets															
Flat 1	WM	✓														
	S	14		60								N		✓	✓	
	WC	✓														
	WHB	14		60												
	ES				✓											
Flat 2	WM	✓														
	S			47								N		✓		
	WC	✓														
	WHB	✓		✓												
	ES				✓											
Flat 3	WM	✓														
	S	14		35								N		✓		
	WC	✓														
	WHB	✓		✓												
	Bath	✓		✓												
	ES				✓											
Flat 4	WM	✓														
	S	13		60								N		✓		
	WC	✓														
	WHB	✓		✓												
	ES				✓											
Flat 5	WM	✓														
	S	✓		60												
	WC	✓														
	WHB	13		60												
	ES				✓											
Flat 6	WM	✓														
	S	✓		60								N		✓		
	WC	✓														
	WHB	14		✓												
	Bath	✓		✓												
	ES				✓											
Flat 7	WM	✓														
	S	✓		50								N		✓		
	WC	✓														
	WHB	14		✓												
	ES				✓											

Section 11 – Hot & Cold Water Services Temperature Data & Asset Register

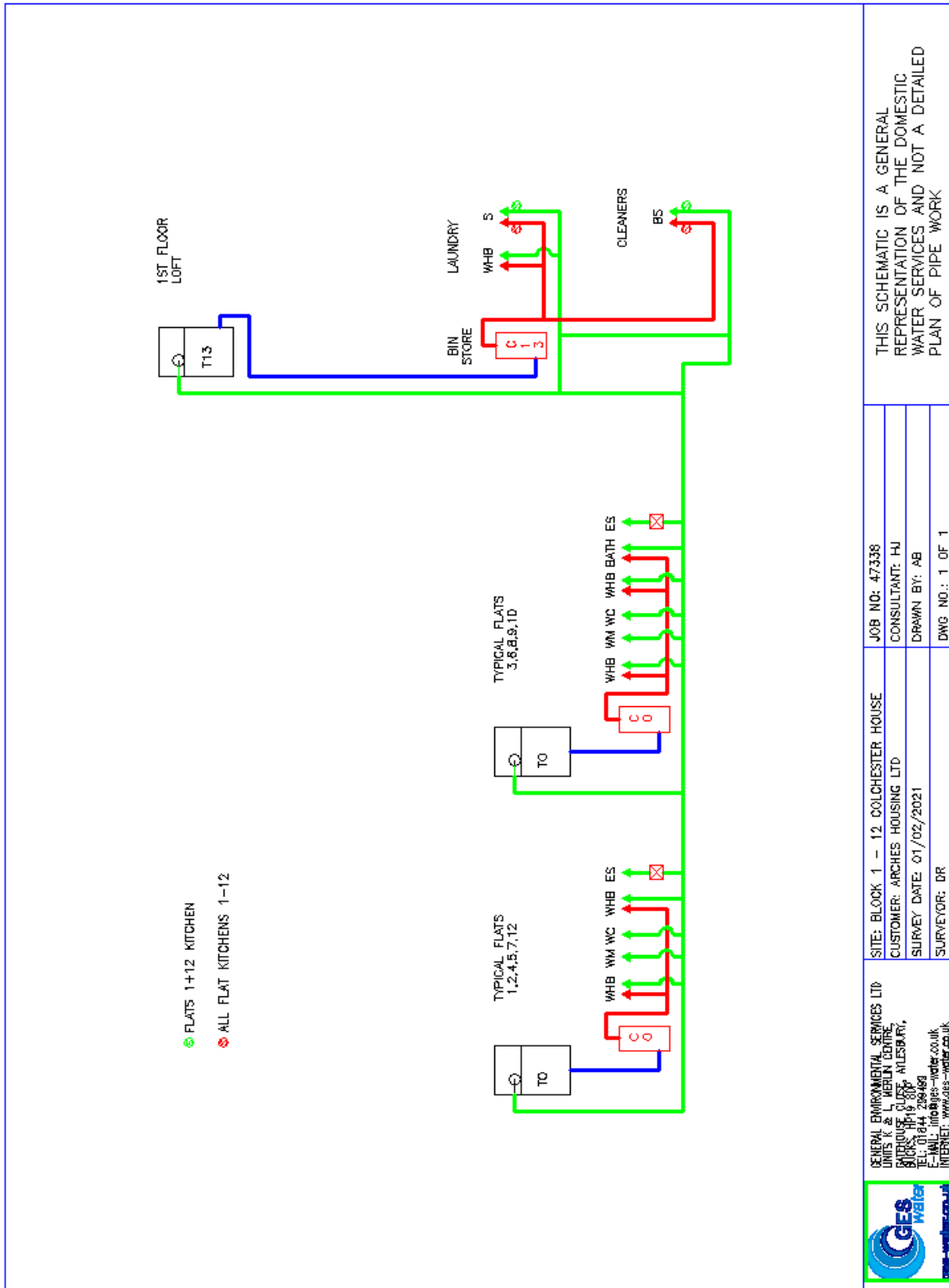
Building:		Source/ Temps °C			TMV Present / Temps °C	TMV' s Isolatable	Thermostatic Shower / taps	Mixer	Filters	In-line Strainers	Dead-leg/end (insert a ✓ or I)	Hose WRAS? Y/N	Low Use	Sentinel Hot	Sentinel Cold
Locations:		Mains	Tank Fed	HWS											
Rooms	Assets														
Flat 8	WM	✓													
	S	10		57								N		✓	
	WC	✓													
	WHB	✓		✓											
	Bath	✓		✓											
	ES			✓											
Flat 9	WM	✓													
	S	✓		55								N		✓	
	WC	✓													
	WHB	10		55											
	Bath	✓		✓											
	ES			✓											
Flat 10	WM	✓													
	S	✓		56								N		✓	
	WC	✓													
	WHB	11		56											
	Bath	✓		✓											
	ES			✓											
Flat 11	No access														
Flat 12	WM	✓													
	S	11		61								N		✓	✓
	WC	✓													
	WHB	✓		✓											
	ES			✓											
Cleaners	BS	10		66										✓	✓
Laundry	WM	✓		✓										✓	✓
	S	10		68								N		✓	✓


















Section 11 – Hot & Cold Water Services Temperature Data & Asset Register

Key for Section 12 Abbreviations (add additional if required)

BD = Bidet	FHR = Fire Hose Reel	STSH = Steam Shower
BS = Belfast Sink	F = Furthest	T = Thermostatic Tap
BT = Bib Tap	GA = Grease Shield	TMV = Thermostatic Mixing Valve
C = Cold	H = Hot	TP = Tea Point
CM = Coffee Machine	HWS = Hot Water Service	U = Urinal
CWS = Cold Water Service	I = Deadleg impractical to remove	VM = Vending Machine
DD = Drinks Dispenser	MXH = Mixer Shower	WB = Water Boiler
DE = Deadend	N = Nearest	WC = Toilet
DF = Drinks Fountain	PP = Potato Peeler	WF = Water Feature
DL = Deadleg	S = Sink	WHB = Wash Hand Basin
DW = Dishwasher	SD = Shared TMV (schematic)	WM = Washing Machine
DWD = Drinking Water Dispenser	SH = Shower	WRAS = Water Regulations Advisory Scheme
ES = Electric Shower	SO = Steam Oven	SSH = Spray Shower
FD = Flushing Device	SS = Spray Sink	

No other risk systems present



LEGEND	
	HOT WATER SERVICE
	COLD WATER DOWN SERVICE
	MAINS WATER SERVICE
	SOFT WATER SERVICE
WC	TOILET
DF	DRINKING FOUNTAIN
UR	URINAL
WHB	WASH HAND BASIN
WM	WASHING MACHINE
DWD	DRINKING WATER DISPENSER
SH	SHOWER
DW	DISHWASHER
TP	TEA POINT
HWB	HOT WATER BOILER
PM	POST MIX
WB	WATER BUNNIE
GW	GLASS WASHER
DL/DE	DEADLEG / DEADEND
FHR	FIRE HOSE REEL
	CALORIFIER
	COLD WATER STORAGE TANK
	WATER METER
	PUMP
	ISOLATING VALVE
DE= DEAD END DL=DEAD LEG FH= FLEXIBLE HOSE TMV= THERMOSTATIC MIXER VALVE  = NON-RETURN VALVE  = THERMOTAP TMS=THERMOSTATIC MIXER SHOWER PRV=PRESSURE-REDUCING VALVE	
	WATER HEATER
	MIXER TAP
	ELECTRIC SHOWER
	TANK-FED SENTINEL
	MAINS-FED SENTINEL
	HOT WATER SENTINEL

1. Legal Requirements and Implications

The risk assessment surveys are undertaken to identify and assess, as far as reasonably practicable, the water systems with regard to the risk of exposure to Legionella bacteria.

In particular, it is the aim of the survey to assess the risk to health in accordance with the Approved Code of Practice and Guidance, L8 'The Control of Legionella Bacteria In Water Systems' (ACoP L8 Guidance) under the Health and Safety At Work Act 1974.

The risk assessment document includes comprehensive survey forms. These are designed to provide a good level of background information relating to water services and information relating to potential risks.

It is important that the nominated responsible person gives serious consideration to the recommendations within the risk assessment, and that remedial works, monitoring, and cleaning programmes are implemented. These measures ensure that statutory obligations placed on the responsible person are complied with.

The following Regulations are considered to be relevant to the use and management of water installations where they may potentially pose a risk to health, and have been considered in conjunction with the risk assessment:-

a) Control of Substances Hazardous to Health Regulations 2002 (COSHH)

These Regulations require:-

- The employer to carry out a suitable and sufficient risk assessment of the risks created by their undertaking to the health of their employees and the general public.
- The employer to prevent or where this is not reasonably practicable, adequately control the risk of exposure. This would involve control measures, monitoring and maintenance procedures, and adequate training.
- The employer has a managerial obligation to co-operate in providing suitable emergency procedures in the event of an outbreak or suspected outbreak.

b) Health and Safety at Work Act 1974

Sections 2-3 require that employers take all reasonable precautions to protect the health and safety of employees and the general public.

c) The Approved Code of Practice & Guidance (ACoP) for the control of Legionella bacteria in water systems (commonly known as ACoP L8 Guidance)

Provides guidance on how to:-

- Appoint a responsible person
- Identify and assess sources of risk
- Prepare a scheme for preventing or controlling the risk
- Implement and manage precautions
- Keep records of precautions implemented

The assessment should be reviewed regularly and whenever there is reason to suspect that it is no longer valid. This may result from, for example:

- Changes to the water system (including plant) or its use
- Changes to the use of the building in which the water system is installed
- The availability of new information about risks or control measures
- The result of checks indicated that control measures are no longer effective
- A case of Legionellosis is associated with the water system
- Changes to key personnel

The following systems are identified in the ACoP L8 Guidance, which may create a reasonably foreseeable risk of Legionellosis:-

- Cooling towers and evaporative condensers
- Hot and cold water services
- Humidifiers and air washers where the water temperature exceeds 20°C
- Spa baths and pools where the water is deliberately agitated
- Other plant and systems containing water which is likely to exceed 20°C and which can release a spray or aerosol

2. General ACoP (L8) 4th Edition & HSG274 Guidance Recommendations for Domestic Services

The risk assessment may make the following types of recommendations in respect of the water supply, and hot and cold water services.

a) Mains Water Supply

Potable water supplied through the mains is generally of high quality. However, water taken from alternative sources i.e. bore holes and private supplies could be contaminated with organic materials and organisms including Legionella.

It is therefore important to ensure that the water supplied to any building is of an acceptable quality.

In particular, pipe runs to cold water outlets should not follow the route of heating of hot water pipes, and where possible should not pass through heated areas.

Further care should be taken to ensure that drinking water outlet points are not installed at the end of a very long pipe where only small volumes of water are drawn off.

Water Temperatures

0 -19°C	---	Legionella will remain dormant
20 - 45°C	---	Legionella will multiply
60°C and above`	---	Legionella will not survive

b) Stored Cold Water Systems

Correctly maintained cold water services should present little risk in the course of normal operation. However, a number of factors if not controlled, greatly increase the risk.

- **Temperature Control**

Cold water must be maintained below 20°C to prevent Legionella bacteria and other micro-organisms, from proliferating. Insulating storage cisterns and pipe work can control temperature, thus preventing the gain of heat from hot water services and other heat sources.

- **Storage Cistern Size**

Suitably-sized storage cisterns should be used to comply with Water Supply (Water Fittings) Regulations 1999, to prevent water stagnation and possible heat gain.

Additionally, storage cisterns and their distribution systems as a whole, must also comply with Water Supply (Water Fittings) Regulations 1999.

Therefore, it is important that water temperature and water quality are maintained and storage cisterns inspected on a regular basis (minimum six-monthly).

Consequently, a water hygiene monitoring regime and cleaning program should be implemented to ensure clean and safe water.

c) Hot Water Services

Hot water services are generally considered to present the highest level of the risk when not maintained correctly. A number of factors can be controlled to minimise the risk.

- **Temperature Control**

A calorifier or water heater must be capable of heating its contents to 60°C. At the outlets a temperature of 50°C should be attainable within a minute of running.

Temperature can be maintained by insulating both the calorifier/water heater and associated pipe work, through to the outlets.

The water temperature within a calorifier/water heater and the outlet temperatures should be regularly checked (monthly). Additionally, the hot water service system should be inspected (and consequently cleaned and disinfected if necessary) on an annual basis, to prevent the build up of sludge and debris and bacterial colonisation respectively. With careful management and water hygiene monitoring procedures, the risk of Legionellosis can be minimised.

3. British Standard 8580 - 1:2019

A code of practice that provides guidance and recommendations for water quality – risk assessments for legionella control.

4. Health Technical Memorandum 04-01

The control of Legionella, hygiene, 'safe' hot water, cold water and drinking water systems. Provides specific healthcare related guidance for estates and facilities professionals.

5. Additional Considerations

a) Potential Scalding Risk

Where the temperature of the hot water exceeds 60°C or the users of the building are susceptible to higher temperatures. There is a potential scald risk for young children, the elderly, some persons with disabilities and those with sensory impairment.

Public areas and facilities are of particular concern and blending valves should be fitted to supply water at a temperature of 41°C ± 2°C. Measures should be taken to either reduce the temperature to 41°C ± 2°C and/or incorporate temperature control measures in accordance with ACoP L8 guidance.

b) Asbestos

Prior to undertaking any works, materials suspected of being asbestos based should be evaluated and appropriate action taken covered by Asbestos Regulations.

c) Access to Plant

In order to carry out assessments and remedial action it is important that safe access to storage cisterns and other assets is available, and considered as part of remedial works where access problems occur.

This risk assessment and schematics have been produced from the water system viewed at the time of the survey. Only by disinfections or chemical tracer tests, can accurate feeds be established.

This survey does not include any cooling water systems; if any are present on site these form part of a separate risk assessment.

Actions Following Legionella Detection

ACoP L8 Table 2.2: Action levels following Legionella sampling in hot and cold water systems

Legionella bacteria (cfu/litre)	Action required
More than 100 cfu/l and up to 1000	<p>Either:</p> <p>(a) If the minority of samples are positive, the system should be resampled. If similar results are found again, a review of the control measures and risk assessment should be carried out to identify any remedial actions necessary or</p> <p>(b) If the majority of samples are positive, the system may be colonised, albeit at a low level. An immediate review of the control measures and risk assessment should be carried out to identify any other remedial action required. Disinfection of the system should be considered.</p>
More than 1000 cfu/l	The system should be resampled and an immediate review of the control measures and risk assessment carried out to identify any remedial actions, including possible disinfection of the system. Retesting should take place a few days after disinfection and at frequent intervals afterwards until a satisfactory level of control is achieved.

ACoP L8 Table 2.3: Action levels following Legionella sampling in hot and cold water systems in healthcare premises with susceptible patients

Legionella bacteria (cfu/litre)	Action required
Not detected or up to 100 cfu/l	In healthcare, the primary concern is protecting susceptible patients, so any detection of legionella should be investigated and, if necessary the system resampled to aid interpretation of the results in line with the monitoring strategy and risk assessment.
More than 100 cfu/l and up to 1000 cfu/l	<p>Either:</p> <p>(a) If the minority of samples are positive, the system should be resampled. If similar results are found again, review the control measures and risk assessment to identify any remedial actions necessary or</p> <p>(b) If the majority of samples are positive, the system may be colonised, albeit at a low level. An immediate review of control measures and a risk assessment should be carried out to identify any other remedial action required. Disinfection of the system should be considered.</p>
More than 1000 cfu/l	The system should be resampled and an immediate review of the control measures and risk assessment carried out to identify any remedial actions, including possible disinfection of the system. Retesting should take place a few days after disinfection and at frequent intervals thereafter until a satisfactory level of control is achieved.

Recommended Inspection Frequencies for Risk Systems

ACoP L8: Hot and cold water services

Service	Task	Frequency
Hot water services	Arrange for samples to be taken from hot water calorifiers, in order to note condition of drain water	Annually
	Check temperatures in flow and return at calorifiers	Monthly
	Check water temperature up to one minute to see if it has reached 50°C in the sentinel taps	Monthly
	Visual check on internal surfaces of calorifiers for scale and sludge. Check representative taps for temperature as above on a rotational basis	Annually
Cold water services	Check tank water temperature remote from ball valve and mains temperature at ball valve. Note maximum temperatures recorded by fixed max/min thermometers where fitted	Six monthly
	Check that temperature is below 20°C after running the water for up to two minutes in the sentinel taps	Monthly
	Visually inspect cold water storage tanks and carry out remedial work where necessary. Check representative taps for temperature as above on a rotational basis	Annually
Shower Heads	Dismantle, clean and descale shower heads and hoses	Quarterly or as necessary
Little-used outlets	Flush through and purge to drain, or purge to drain immediately before use, without release of aerosols	Weekly

ACoP L8: Other risk systems

Service/service	Task	Frequency
Ultrasonic humidifiers/foggers and water misting systems	If equipment fitted with UV lights, check to ensure effectiveness of lamp (check to see if within working life) and clean filters	Six monthly or according to manufacturer's instructions
	Ensure automatic purge of residual water is functioning	As part of machinery shut down
	Clean and disinfect all wetted parts	As indicated by risk assessment
	Sampling for legionella	As indicated by risk assessment
Spray humidifiers, air washers and wet scrubbers	Clean and disinfect spray humidifiers/air washers and make-up tanks including all wetted surfaces, descaling as necessary	Six monthly
	Confirm the operation of non-chemical water treatment (if present)	Weekly
Water softeners	Clean and disinfect resin and brine tank – check with manufacturer what chemicals can be used to disinfect resin bed	As recommended by manufacturer
Emergency showers and eye wash sprays	Flush through and purge to drain	Six monthly or more frequently if recommended by manufacturers
Sprinkler and hose reel systems	When witnessing tests of sprinkler blow-down and hose reels ensure that there is minimum risk of exposure to aerosols	As directed
Spa baths	Check filters – sand filters should be backwashed daily	Daily
	Check water treatment – pools should be continuously treated with an oxidising biocide	Three times daily
	Clean and disinfect entire system	Weekly
Horticultural misting systems	Clean and disinfect distribution pipe work, spray heads and make-up tanks including all wetted surfaces, descaling as necessary	Annually
Dental equipment	Drain down and clean	At the end of each working day
Car/bus washes	Check filtration and treatment system, clean and disinfect system	See manufacturers' instructions
Indoor fountains and water features	Clean and disinfect ponds, spray heads and make-up tanks including all wetted surfaces, descaling as necessary	Interval depending on condition

Terms below relevant to domestic hot & cold legionella risk assessment

Aerosol	A suspension in a gaseous medium of solid particles, liquid particles or solid and liquid particles having negligible falling velocity.
Bacteria	(singular bacterium) a microscopic, unicellular (or more rarely multicellular) organism.
Biocide	A substance which kills micro-organisms.
Biofilm	A community of bacteria and other micro-organisms, embedded in a protective layer with entrained debris, attached to a surface.
Blow-down/bleed off	Water discharged from the system to control the concentration of salts or other impurities in the circulating water; usually expressed as a percentage of recirculating water flow.
Calorifier	An apparatus used for the transfer of heat to water in a vessel by indirect means, the source of heat being contained within a pipe or coil immersed in the water.
Chlorine Dioxide	A chemical used for microbiological control.
Cold water service (CWS)	Installation of plant, pipes and fitting in which cold water is stored, distributed and subsequently discharged.
Dead end/blind end	A length of pipe closed at one end through which no water passes.
Dead-leg	Pipes leading to a fitting through which water only passes when there is draw-off from the fitting.
Disinfection	A process which destroys or irreversibly inactivates micro-organisms and reduces their number to a non-hazardous level.
Distribution circuit	Pipe work which distributes water from hot or cold water plant to one or more fittings/appliances.
Domestic water services	Hot and cold water intended for personal hygiene, culinary, drinking water or other domestic purposes.
Fouling	Organic growth or other deposits on heat transfer surfaces causing loss in efficiency.
Hot water service (HWS)	Installation of plant, pipes and fittings in which water is heated, distributed and subsequently discharged (not including cold water feed tank or cistern).
Legionnaires' disease	A form of pneumonia caused by Legionella bacteria.
Legionella	Type of aerobic bacterium which is found predominantly in warm water environments. (Singular of legionellae).
L. pneumophila	One of the causative organisms of Legionnaires' disease.
Legionellosis	Any illness caused by exposure to legionella.
Pontiac fever	A disease caused by species of Legionella, an upper respiratory illness less severe than Legionnaires' disease.
Make-up water	Water which is added to a cooling water system to compensate for wastage (e.g. via system leaks), evaporative loss and bleed.

Micro-organism	An organism of microscopic size including bacteria, fungi and viruses.
Non-oxidising biocide	A non-oxidising biocide is one that functions by mechanisms other than oxidation, including interference with cell metabolism and structure.
Nutrient	A food source for micro-organisms.
Oxidising biocide	Agents capable of oxidising organic matter, e.g. cell material, enzymes or proteins which are associated with microbiological populations resulting in death of micro-organism, the most commonly used oxidising biocides are based on chlorine or bromine (halogens) which liberate hypochlorous or hypobromous acids on hydrolysis in water. The exception is chlorine dioxide, a gas which does not hydrolyse but which functions in the same way.
Pasteurisation	Heat treatment to destroy micro-organism usually at high temperature.
Risk assessment	Identifying and assessing the risk from Legionellosis from work activities and water sources on premises and determining any necessary precautionary measures.
Scale inhibitors	Chemicals used to control scale. They function by holding up the precipitation process and/or distorting the crystal shape, thus preventing the build-up of a hard adherent scale.
Sero-group	A sub-group of the main species.
Sentinel taps	For a hot water services – the first and last taps on a recirculating system. For cold water systems (or non-recirculating hot water systems), the nearest and furthest taps from the storage tank. The choice of sentinel taps may also include other taps which are considered to represent a particular risk.
Sessile	Aquatic micro-organisms adhering to a surface normally as part of a biofilm.
Sludge	A general term for soft mud-like deposits found on heat transfer surfaces or other important section of a cooling system. Also found at the base of calorifiers and cold water storage tanks.
Shunt pump	A circulation pump fitted to hot water service/plant to overcome the temperature stratification of the stored water.
Slime	A mucus-like exudates which covers a surface produced by some micro-organisms.
Stagnation	The condition where water ceases to flow and is therefore liable to microbiological growth.
Thermal disinfection	Heat treatment to disinfect a system.
Thermostatic mixing valve	Mixing valve in which the temperature at the outlet is pre-selected and controlled automatically by the valve.
Total viable counts (TVC)	The total number of culturable bacteria (per volume or area) in a given sample (does not include Legionella).

Part Three Appendix 5 – Cold Water Storage Tank(s): Written Scheme

Information below taken directly from “Legionnaires’ disease. The control of legionella bacteria in water systems L8”

Water storage tanks should be fitted with covers which comply with the Water Regulations and insect screens fitted to any pipe work open to the atmosphere, e.g. the overflow pipe & vent.

Multiple linked storage tanks should be avoided because of operational difficulties arising from possible unequal flow rates and increased risk of stagnation.

The volume of cold water stored should be minimised; it should not normally be greater than one day’s water use. Multiple cold water storage tanks require care in the connecting piping to ensure that the water flows through each of the tanks, so avoiding stagnation in any one tank.

The cold water storage tank should be sited in a cool place and protected from extremes of temperature by thermal insulation. Piping should be insulated and kept away from hot ducting and other hot piping to prevent excessive temperature rises in the cold water supply; typically not more than 2°C increase should be allowed. The pipe work should be easy to inspect so that the thermal insulation can be checked to see that it is in position and has remained undisturbed.

Task	Frequency
Check tank water temperature remote from ball valve and mains temperature at ball valve. Tank temperature should not exceed 20°C	Six monthly
Visually inspect cold water storage tanks and carry out remedial work where necessary.	Annually
Make a record of the total cold water consumption over a typical day to establish that there is reasonable flow through the tank and that water is not stagnating.	Annually

To ensure effectiveness of the above tasks, regular samples for microbiological analysis should be taken.

Part Three Appendix 5 – Calorifiers/Water Heaters: Written Scheme

Information below taken directly from “Legionnaires’ disease. The control of legionella bacteria in water systems L8”

Some form of scale control is desirable in hard water areas. The use of point - of - use hot water generators, with minimal or no storage for remote low - use outlets should be considered. The storage capacity and recovery rate of the calorifier should be selected to meet the normal daily fluctuations in hot water use without any drop in the supply temperature. The vent pipe from the calorifier which allows for the increase in volume of the water circuit, to prevent hot water being discharged. However, if discharged, the water should go to a tundish.

Where more than one calorifier is used, they should be connected in parallel and if temperature is used as a means of control, each should deliver water at a temperature of at least 60°C. All calorifiers should have a drain valve located in an accessible position at the lowest point of the vessel so that accumulated sludge can be drained easily and the vessel emptied in a reasonable time. A separate drain should be provided for the hot water system vent (particularly if the feed to the calorifier incorporates a non return valve).

If temperature is used as the means of controlling legionella, the hot water circulating loop should be designed to give a return temperature to the calorifier of 50°C or above. The pipe branches to the individual hot taps should be of sufficient size to enable the water in each of the hot taps to reach 50°C within 1 minute of turning on the tap. Thermometer/immersion pockets should be fitted on the flow and return to the calorifier and in the base of the calorifier in addition to those required for control.

In larger calorifiers, the fitting of time controlled shunt pumps should be considered to overcome temperature stratification of stored water. Hot water distribution pipes should be insulated. If temperature is used as a means of controlling legionella, trace heating should be provided on non-circulatory hot water distribution pipe work where the discharge temperature would not otherwise reach 50°C in 1 minute.

Task	Frequency
Drain & arrange for samples to be taken from hot water calorifiers/water heaters etc, in order to note condition of drain water	Annually
Drain & conduct a visual check on the internal surfaces of calorifiers/water heaters etc. for scale & sludge.	Annually
Drain & check for debris in the base of the vessel. The calorifier should then be cleaned if considered necessary.	Annually
Check temperatures in flow and return at calorifiers	Monthly

To ensure effectiveness of the above tasks, regular samples for microbiological analysis should be taken.

Part Three Appendix 5 – Domestic Hot Water Services (Including Showers): Written Scheme

Information below taken directly from “Legionnaires’ disease. The control of legionella bacteria in water systems L8”

Some form of scale control is desirable in hard water areas. The following materials should not be used in Hot & Cold Water Systems: Natural Rubber, Hemp, Linseed oil-based Jointing Compounds and fibre washers. Low corrosion materials such as: Plastic, Copper & Stainless Steel etc should be used where possible. Accumulator vessels on pressure - boosted hot & cold water services should be fitted with diaphragms which are accessible for cleaning. The use of point - of - use hot water generators, with minimal or no storage for remote low use outlets should be considered.

Showers (excluding safety showers) should not be fitted where they are likely to be used less than once a week. Thermostatic mixing valves (TMV’s) should be sited as close as possible to the point of use. Ideally, a single TMV should not serve multiple tap outlets but, if they are used, the mixed water pipe work should be kept as short as possible. Where a single TMV serves multiple showerheads, it is important to ensure that these showers are flushed frequently. TMV’s should not be used with low volume spray taps in buildings with susceptible populations.

Taps fitted with mesh inserts should form part of a regular cleaning regime or be removed altogether.

Task	Frequency
Flush through little-used outlets and purge to drain, or purge to drain immediately before use, without release of aerosols	Weekly
Check water temperature up to one minute to see if it has reached 50°C in the sentinel taps.	Monthly
Dismantle, clean & descale shower heads and hoses	Quarterly or as necessary
Check representative taps for temperature as above on a rotational basis.	Annually
Check the plans for hot water circuits to make sure they are correct and up to date (by physical examination). Plans should be updated if necessary.	Annually

To ensure effectiveness of the above tasks, regular samples for microbiological analysis should be taken.

Part Three **Appendix 5 – Cold Water Services:
Written Scheme**

Information below taken directly from “Legionnaires’ disease. The control of legionella bacteria in water systems L8”

The following materials should not be used in Hot & Cold Water Systems: Natural Rubber, Hemp, Linseed oil-based Jointing Compounds and fibre washers. Low corrosion materials such as: Plastic, Copper & Stainless Steel etc should be used where possible. Accumulator vessels on pressure - boosted hot & cold water services should be fitted with diaphragms which are accessible for cleaning. Low use outlets should be installed upstream of higher use outlets to maintain frequent flow. Taps fitted with mesh inserts should form part of a regular cleaning regime, or remove the mesh altogether.

Task	Frequency
Flush through little-used outlets and purge to drain, or purge to drain immediately before use, without release of aerosols	Weekly
Check that temperature is below 20°C after running the water for up to two minutes in the sentinel taps	Monthly
Emergency showers and eye wash sprays: flush through and purge to drain	Six monthly or more frequently if recommended by manufacturers
Check representative taps for temperature as above on a rotational basis	Annually
Check the plans for cold water circuits to make sure they are correct and up to date (by physical examination). Plans should be updated if necessary.	Annually

To ensure effectiveness of the above tasks, regular samples for microbiological analysis should be taken.

Part Three Appendix 5 – Drinking Water (and/or mains outlets): Written Scheme

Information below taken directly from “Legionnaires’ disease. The control of legionella bacteria in water systems L8”

The following materials should not be used in Hot & Cold Water Systems: Natural Rubber, Hemp, Linseed oil-based Jointing Compounds and fibre washers. Low corrosion materials such as: Plastic, Copper & Stainless Steel etc should be used where possible. Taps fitted with mesh inserts should form part of a regular cleaning regime, or remove the mesh altogether.

Task	Frequency
Flush through little-used outlets and purge to drain, or purge to drain immediately before use, without release of aerosols	Weekly
Check that temperature is below 20°C after running the water for up to two minutes in the sentinel taps	Monthly
Emergency showers and eye wash sprays: flush through and purge to drain	Six monthly or more frequently if recommended by manufacturers
Check representative taps for temperature as above on a rotational basis	Annually
Check the plans for cold water circuits to make sure they are correct and up to date (by physical examination). Plans should be updated if necessary.	Annually

To ensure effectiveness of the above tasks, regular samples for microbiological analysis should be taken.

Information below taken directly from “Legionnaires’ disease. The control of legionella bacteria in water systems L8”

The following materials should not be used in Hot & Cold Water Systems: Natural Rubber, Hemp, Linseed oil-based Jointing Compounds and fibre washers. Low corrosion materials such as: Plastic, Copper & Stainless Steel etc should be used where possible.

Task	Frequency
Check that the total hardness of the water being supplied by the water softener suits its application.	Weekly
Clean & disinfect resin & Brine tank - check with manufacturers what chemicals can be used to disinfect resin bed.	As recommended by manufacturer
Service the softener to ensure effectiveness is maintained	As recommended by manufacturer

To ensure effectiveness of the above tasks, regular sample for microbiological analysis should be taken.

Part Three Appendix 6 – Population Susceptibility, Risk Categories

Description of Persons on Site	Risk Category
School Pupils	Low
College/University Pupils	Normal
Contractors working on water systems	Normal
General Public	Normal
Site Personnel	Normal
Children up to 4 years old	Low
Outpatients	High
Elderly Persons	High
Drug / Alcohol Addicts	High
Immuno-suppressed	Very High
High proportion of personnel over 45	High
People with poor respiratory condition	Very High
Intensive Care Patients	Very High
Transplant / cancer patients	Very High
Smokers	High
OCPD / respiratory conditions	Very High

When should the risk assessment be reviewed?

1. If there is a change to the system or its use
2. The use of the building in which the system is installed
3. New information about risks and control measures
4. Results of checks that indicate control measures are no longer effective (i.e. on-going non-compliant temperatures and /or sampling results).
5. Changes to key personnel
6. A case of legionnaires disease attached to the system
7. Or, as advised in Section 3 of this document

This is to certify that

Darren Roden

of

Spectrum Environmental Solutions Ltd

has completed a one day training course on

Practical Legionella Risk Assessment

Subjects covered include:

Requirements for Risk Assessors

Legionella awareness - microbiology & origins

Legislation & regulations

Risk Assessment theory - simple & extended

Risk Assessment study

Risk Assessment in practice

WMSoc ACCREDITED

The candidate showed capability of working in a competent manner during the practical work & presentations

The following level was attained at the end-of-day assessment

Pass

Signed: *David Bebbington*

Alan J. Pipe



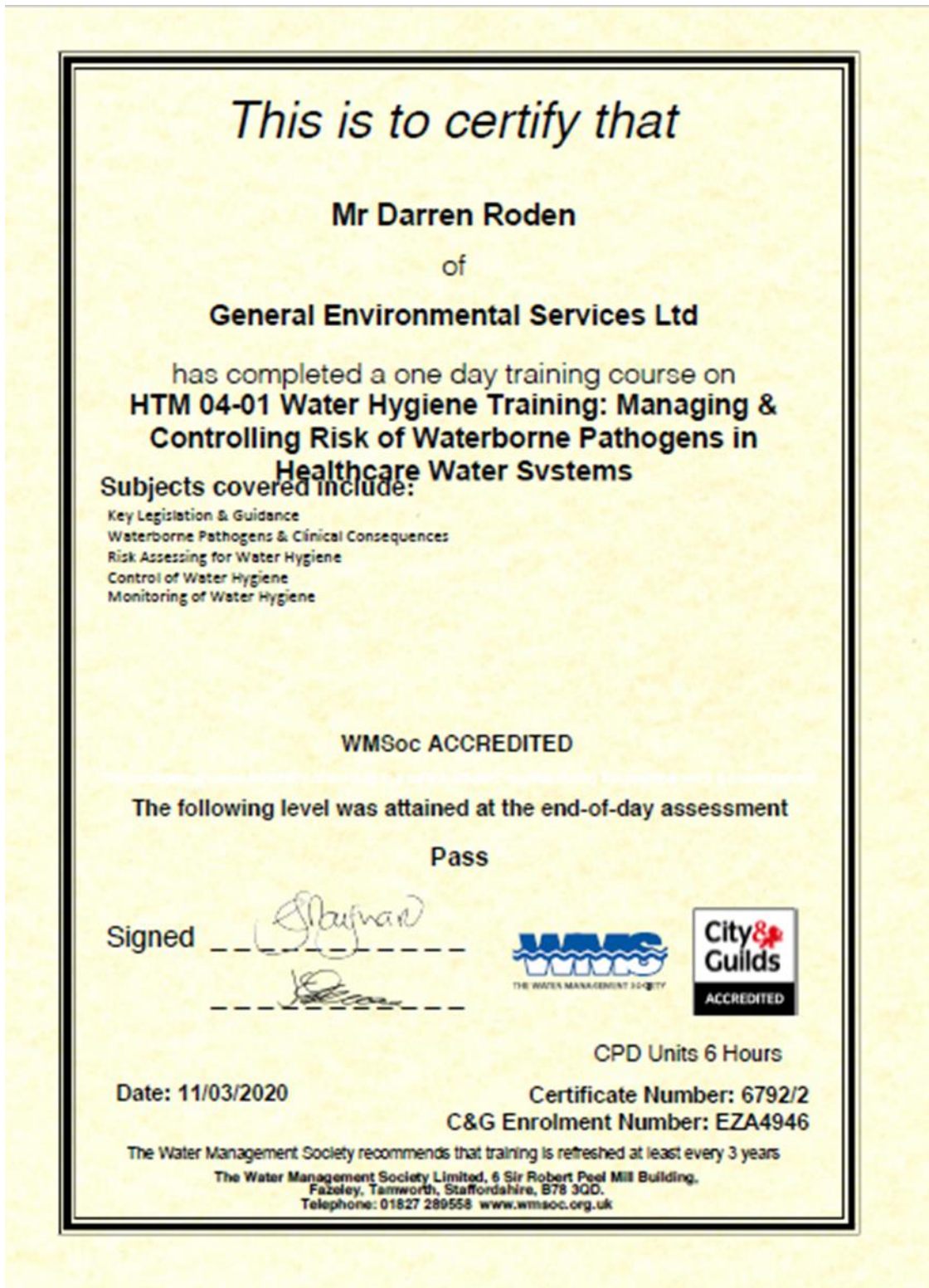
Certificate Number:2122/11/2212

Date: 22 September 2011

CPD Units 6 Hours

The Water Management Society, Sir Robert Peel Mill Building, Hoyer Walk,
Tolson's Enterprise Park, Fazeley, Tamworth, Staffordshire B78 3QD
01827 289558 www.wmsoc.org.uk

Appendix 8 – Assessor(s) Competency Certificate & Impartiality





A. Impartiality, Integrity and Confidentiality of Legionella Risk Assessments.

General Environmental Services (hereinafter known as GES), its Directors, Managers, Staff and other persons involved in the process fully understand the importance of Impartiality in undertaking any Certification Activities.

GES has identified activities (as listed) which may result in a conflict of interest or pose a threat to Impartiality through departments, Finance, Operations and Sales.

Risk Assessment for Legionella control (including);

- Cold Water Storage Tank(s)
- Calorifiers
- Point of use water heaters, header tanks
- Domestic hot and cold water systems
- Temperature measurement
- Re-surveys of a premises already surveyed
- Other systems including but not limited to ultrasonic humidifiers/foggers and water misting systems, spray humidifiers, air washers and wet scrubbers, water softeners, emergency showers and eye wash sprays, sprinkler and hose reel systems, lathe and machine tool coolant systems, jacuzzi's and spa baths, horticultural misting systems, dental equipment, car/bus washes, indoor fountains and water features, reverse osmosis, chlorine dioxide systems, ultra-violet systems, AHU's, filters, corrosion inhibitor dispenser, rain water harvesting, ice making machines, dishwashers, fire control systems, plating area process water/rinse tanks, heating and chilled water systems and any other water systems that may encourage bacterial growth.

Identified threats for example,

- Sales, Operations, Finance putting pressure on Risk Assessors to report works favourable to the relevant department which would result in works being carried out by GES. Potentially conflicting activities including but not limited to:
 - Tank clean and disinfection
 - Training
 - Remedial works
 - Dead leg removal
 - Tap descales
 - Shower head and hose cleaning and disinfection
 - Temperature monitoring
- Reporting potential remedial works over and above the Risk Assessment to Sales in order for sales figures to be increased.
- Finance advising Risk Assessors that figures are low and to ensure that they report any potential extra works over and above the Risk Assessment.

Safeguards have been put in place to ensure that this does not happen, Impartiality, Integrity and Confidentiality now forms part of all departmental meeting agenda items, all staff are to sign the impartiality, Integrity and Confidentiality of Legionella Risk Assessments document.

Management will also conduct an Annual Risk Assessment on Impartiality and Conflict of Interest, which is reviewed by the Compliance committee. This is an independent committee made up of members representing our key interests, this annual assessment is recorded below (Part B) and confirmed each year.

Appendix 8 – Assessor(s) Competency Certificate & Impartiality

Conflict of interest and objectivity is addressed further through annual training sessions and contractually binding agreements to ensure that all activities undertaken throughout the certification process are conducted in an independent and impartial manner.

It is paramount that the Compliance Team, in the process of conducting a Legionella Risk Assessment refrain from carrying out additional chargeable works that come outside the mandate of a Legionella Risk Assessment.

Marketing and publicity whether done through social media, our website, mail shots, or any other format must remain impartial. And prior to being distributed be checked by senior management to ensure that the content does not imply the inherent assumption associated, this being that the departments of GES can provide services throughout the assessment and remedial processes.

Ensuring that departments outside the "Compliance Team" do not under any circumstances try and affect the impartiality of any Legionella Risk Assessor and any resulting conclusions therein, safeguards are in place where should an assessor be pressured by any other member of GES staff to influence findings and recommendations to immediately report to the Technical Manager – Gareth Davis.

GES aim to inspire confidence in its management certification to its clients and the public at large by:

- being impartial,
- employing competent personnel,
- being responsive to complaints,
- being open,
- providing access to relevant information gathered,
- fairness,
- transparency of processes,
- maintaining confidentiality,
- having an anti-bribery policy,
- representatives of the compliance committee carry out impartiality audits annually.

All staff must sign the Confidentiality Agreement (WD134) agreeing to the principles of Impartiality and confirming that knowledge of site will be confined to the findings of the Risk Assessment. Any details discovered during any activity completed by the company visit will be kept in confidence and not discussed or communicated with ANY party that may have an interest in any works that may arise from their operations.

By signing this agreement all staff agree that should an occurrence arise that they feel their integrity has been compromised, they are to report the incident to the Managing Director immediately.

Signed: D. Rosen Print Name: D. ROSEN Date: 4/9/2020

Note: See below for annual review of risk to impartiality and conflict of interest declaration.



Legionella Control Association

A Code of Conduct for Service Providers

Certificate of Registration

This is to certify that the following company has submitted a registration under the Conditions of Compliance as laid out in the LCA's Code of Conduct for Service Providers

Name of Company: General Environmental Services Ltd

Registration Number: **2001/1239** Certificate valid until: **31st August 2021**

Registration under the following services categories:

- (1) Legionella Risk Assessment Services**
 - 1.1 Hot and Cold Water Services
 - 1.3 Process and Other Systems
 - 1.4 Healthcare Risk Assessment
- (3) Hot and Cold Water Monitoring and Inspection Services**
- (4) Cleaning and Disinfection Services**
- (6) Training Services**
- (7) Legionella Analytical Services**
 - 7.1 Sampling
 - 7.2 Laboratory Analysis
 - 7.3 Interpretation of Analysis
- (8) Plant and Equipment Services**
 - 8.2 Refurbishment
 - 8.3 Servicing

This Certificate is only valid if the Company named is listed on the LCA website www.legionellacontrol.org.uk/directory.php



WWS
THE WATER MANAGEMENT SOCIETY

Signed: *[Signature]*
E. Curran

Chairman, Executive Committee

Certificate Secretary



BACS
British Association for the Control of Legionnaires Disease

Legionella Control Association Limited. www.legionellacontrol.org.uk
Registered in England and Wales No. 5502723

The legal duty to comply with relevant health and safety legislation (including avoidance or control of risk to exposure to Legionella bacteria), rests solely with the statutory dutyholder, being either the employer or the person in control of the premises or systems where any relevant risk is present, and this cannot be delegated. Specific functions (e.g. carrying out risk assessment) can be delegated and the Legionella Control Association (LCA) Code of Conduct is designed to help service providers, who also have duties under health and safety legislation, to establish appropriate management systems for the prevention or control of risk from Legionella bacteria. The LCA assesses the management systems of LCA members upon initial registration, reviews annually upon re-registration, and re-assesses by annual company audits. The LCA cannot and does not carry out other regular supervision of its members' commitments to the Code of Conduct nor their compliance with other LCA guidelines. A valid LCA certificate of registration (which is only valid if the Company named is listed on the LCA website www.legionellacontrol.org.uk/directory.php) confirms only that a service provider has satisfied LCA requirements of registration and its risk record meets compliance audit. It does not confirm the service provider's compliance with their commitments to the LCA Code of Conduct and/or other LCA guidelines. The LCA does not approve specific products or services as being effective in controlling Legionella or verify the competence of service providers' staff and sub-contractors, which is the duty of the service provider and the statutory dutyholder. The LCA accepts no liability for any omission or any act carried out in reliance on the LCA Code of Conduct or other LCA guidelines, or any loss or damage resulting from non-compliance with such documents.