Legionella Risk Assessment

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8717

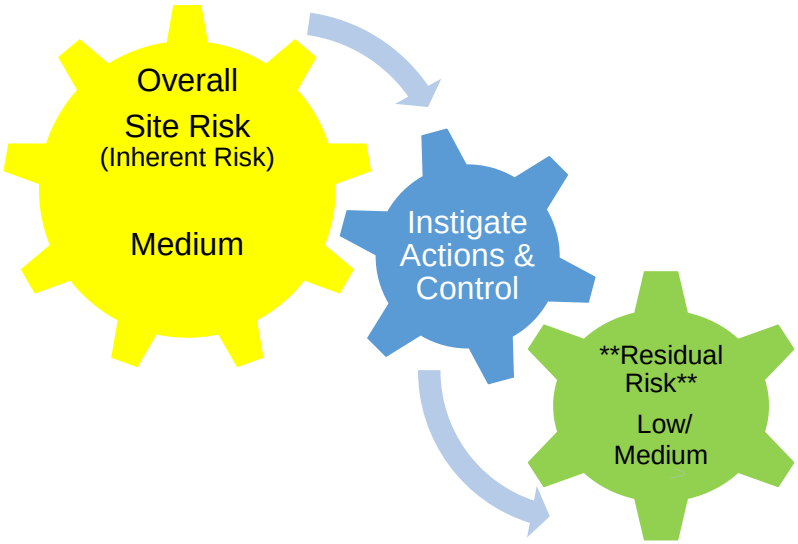
Site: Arches Housing Ltd

Customer: 140-142 Burngreave Road

Date of Assessment: 23 July 2024

Risk Assessor: D Roden

Risk Assessor Signed: D Roden



Residual Risk is the Risk that remains after all efforts to eliminate and reduce risks have been made

Advisory Review Date**: July 2026**

Guidance on review. See Section 3 and Appendix 7

General Environmental Services Ltd.

Contents

Section 1 – Site Details

Customer:	Arches Housing Ltd
Customer Address:	122 Burngreave Road Sheffield S3 9DE
Customer Contact:	Nicola Maguire
Telephone:	07774 347950
Site:	140-142 Burngreave Road Sheffield S3 9DH
Site Contact:	Nicola Maguire
Site Telephone:	07774 347950
GES Account Manager:	Holly Jackson
Mobile:	07788 716454
Email:	hjackson@ges-water.co.uk
Address:	GES Water Unit 10a Goldthorpe Industrial Estate Commercial Road Rotherham S63 9BL
Telephone:	01226 399244

Section 1 – Site Details

Type of Building: Accommodation

Assets on site & considered in survey	Present (number)		
Mains water supply to site	1		
Other water supply to site (please specify below)	0		
Cold Water Storage Tanks	2		
Calorifiers	2		
Water Heaters	0		
Water Heaters with Header Tanks	0		
Domestic hot water services	27		
Showers	8		
Expansion Vessels (Flushable / Un-flushable)	0	0	
Other Spray Producing Outlets e.g., Spray Connections on Dishwashers	0		
Tank-fed cold water services	20		
Mains-fed cold water services	11		
Water softeners/conditioners	0		
TMVs/Thermotap/Thermostatic Showers	0	0	0
Miscellaneous systems:			
-Fountains & water features	0		
-Whirl pools & Spa baths	0		
-Fire suppression systems	0		
-Car wash – drive through & lance type	0		
-Horticultural misting systems	0		
-Lawn sprinklers & hose pipes, BT/hoses	1		
-Lathe & machine cooling systems	0		
-Vending machines	0		
-Spray booth water curtains	0		
-Industrial uses of water	0		
-Closed Systems	2		
-Others (Chemical Treatment)	0		

Exclusions: *Please note the following were found on site but are not included as part of this risk assessment.*

Not all flats assessed, but advised they are all identical.

Heating system on site not part of this assessment.

Section 1 – Site Details

Summary

Date site assessed:	23rd July 2024
Risk Assessor was shown around site by:	Martin Salvage
Thermometer/Probe reference:	Thermometer: D22120133 Contact Probe: #0115
Type of building:	Accommodation
Approximate age of site *(years)*:	1900's
Currently the building is:	In use
Typically, the building is in use between the hours of:	24/7
Typical number of building users:	8+
It was noted during the assessment that the overall risk of persons on site should be considered as:	Medium
Water to site is via:	Mains enters site and feeds flats kitchen sinks, communal kitchen, laundry & outside BT. Mains also feeds 2x Tanks (T01 - T02). T01 is located in Flat 7 bathroom and feeds cold to 1,4,5,7 and Calorifier 1 (C01) and this feeds hot water to 1,4,5,7. T01 & C01 also feeds communal areas. T02 is located in Flat 8 bathroom and feeds cold to 2,3,6,8 and C02 feeds hot outlets to 2,6,6,8.
Other noteworthy issues on site observed:	GES carry out monthly temps of communal areas only, and annual tank clean & disinfections.
Several actions were noted as requiring attention during our survey please refer to Section 4 for further guidance and notes.	
Following the assessment, an advised Legionella control programme has been suggested please see Section 6b for further guidance.	
The client is advised to review this document and provide any feedback on any amendments within 60 days of receipt of this report.	

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

Section 2 – Nominated Authorities

Nominated Authorities

		Name	Position	Tel No.
Statutory Site Duty Holder		*Paul Common	CEO	
Nominated Responsible Person		*Nicola Maguire	Compliance Officer	
Deputy Nominated Responsible Person		*N/A		
Operational Staff See previous page; list all relevant	**A**	*Janine Galloway	Cleaner	
	B	*		
	C	*		
	D	*		
Service Providers See previous page; list all relevant				
Company: **GES Water**	**A**	Holly Jackson	Environmental Consultant	01226 399244
	B			
	C			

Remedial Action Required Yes	**Action Reference.** **Please refer to your written scheme of control for Legionella bacteria or Allocation of Responsibilities and confirm * above (complete as applicable).**

Section 3 – Site Risk Summary

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)	17°C
c. Potential contamination of the water supply e.g. backflow.	None found
d. Any existing control measures in place?	Annual clean & disinfection carried out on T0's but no sampling seen

Inherent Risk		**Residual Risk**	
Risk before any action, and with present controls in place.	**1**	*Risk if all actions are completed and control program instigated.*	**1**

2. Amplification (conditions that can support Legionella growth):	**Comment:-**
a. Temperature profile of water	C01 & C02 are storing and delivering at non-compliant temperatures, cold tank outlet temps exceeding 20°C around site.
b. Water change (turnover) rate	Assumed to be good, but cannot determine usage in flats
c. Dead leg/ends	None found
d. High risk temperature zone 32-40°C (**not** thermostatically controlled outlets)	Various around site due to low temps on C0's
e. Materials of construction	Scale deposits on outlets
f. Suitability of existing control program	GES carry out monthly temperatures, but rarely get into flats. So mainly communal area better access is frequently required. GES carryout out clean & disinfection of T01 & T02. Improvements required see section 6B

Inherent Risk		**Residual Risk**	
Risk before any action, and with present controls in place.	**2**	*Risk if all actions are completed and control program instigated.*	**1**

Section 3 – Site Risk Summary

3. Aerosols, or water droplets likely to form and spread:	Comment:-
a. Outlets likely to form aerosols	Assumed in all flats – **high**
b. Will aerosols be contained	Yes
c. How far are these likely to spread	Shower (SH) room only
d. Suitability of existing control program	No programme seen

Inherent Risk		Residual Risk	
Risk before any action, and with present controls in place.	**3**	*Risk if all actions are completed and control program instigated.*	**2**

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		Residual Risk	
Risk before any action, and with present controls in place.	**2**	*Risk if all actions are completed and control program instigated.*	**2**

5. Susceptibility of Individuals:	Comment:-
a. Is the exposed population vulnerable to Legionella infections?	Various ranges of susceptibility

Inherent Risk		Residual Risk	
Risk before any action, and with present controls in place.	**2**	*Risk if all actions are completed and control program instigated.*	**2**

Section 3 – Site Risk Summary

6. Conclusion:		Advisory assessment review period based on (Inherent) Risk**
Low Risk****	= 5 - 6	4 Years
Low/Medium Risk	= 7 - 8	4 Years
Medium Risk	= 9 - 10	2 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)

OVERALL SITE RISK (score from 1-5 above)

Inherent Risk		Residual Risk	
Risk before any action, and with present controls in place.	**10**	*Risk if all actions are completed and control program instigated.*	**8**

***These timeframes are advisory, any failures in control, or changes as identified in Appendix 7 will require a higher frequency of re-inspection.*

**** Table 2.2 from HSG274 as example of low-risk building. Important as most buildings will be medium risk as a minimum.

Info box 2.2: Low-risk systems

An example of a low-risk situation:

- in a small building without people especially 'at risk' from legionella bacteria;
- where daily water usage is inevitable and sufficient to turn over the entire system;
- where cold water comes directly from a wholesome mains supply (no stored water tanks);
- where hot water is fed from instantaneous heaters or low storage volume water heaters (supplying outlets at 50 °C);
- where the only outlets are toilets and hand washbasins (no showers).

Section 4 – Desk Top Appraisal

RISK ASSESSMENT SCORING – RECORD KEEPING SYSTEMS			
Criteria	**Key to scores**		**Risk assessment score**
Site logbook	Low	Comprehensive logbook and fully up to date.	Medium
	Medium	Logbook present, but some records missing.	
	High	No site logbook or unable to access	
Details of current risk assessment	Low	Previous risk assessment satisfactory	Medium
	Medium	Out of date or insufficient risk assessment	
	High	No previous risk assessment available	
Description and plan of system	Low	Full description and up-to-date drawing	Medium
	Medium	Insufficient description, out of date drawing	
	High	No description or drawing	
Description of Asset Registers and their accuracy	Low	Full description and up-to-date asset register	Medium
	Medium	Insufficient description, out of date asset register with some omissions	
	High	No description or drawing	
Written control scheme details of precautionary measures for Legionella control. Note: check schedule of monitoring, operational checks, inspections, and calibration checks	Low	Full plan in force and up to date (see Section 6a).	Medium
	Medium	Plan present, but some deficiencies (See Section 6a and Section 6b and notes below).	
	High	No plan of precautionary measures available (See Section 6b and notes below).	
Effectiveness of precautionary measures for Legionella control	Low	Monitoring records show consistent desired outcome.	Medium
	Medium	Some out of specification results, but remedial actions documented.	
	High	Written scheme insufficient	
Written details of incident and emergency measures for Legionella control	Low	Full plan in force and up to date.	Medium
	Medium	Plan present, but some deficiencies	
	High	No plan of precautionary measures available	

Section 4 – Desk Top Appraisal

RISK ASSESSMENT SCORING – RECORD KEEPING SYSTEMS			
Criteria	**Key to scores**		**Risk assessment score**
Procedures and records for inspecting and checking the system i.e., clean and disinfection certificates, Calorifier inspections etc. including all maintenance records. Ensure no deviations from operating procedures.	Low	Full, documented schedule & records in place	Medium
	Medium	Insufficient schedule/documentation/records	
	High	No procedures, inspection details, records	
Inspection and assessment of the design, construction and condition of the water system and accessible equipment	Low	Good Condition	Medium
	Medium	Generally acceptable but some improvements may be advisable	
	High	Poor condition significant remedial works required.	
Are all areas of the system available for inspection.	Low	All areas available (only minimal exclusions present)	Medium
	Medium	Not areas accessible but the assessor could garner sufficient information from the existing assessment and/or site records.	
	High	Poor access and no previous LRA or records for reference. POSTPONE AND RESCHEDULE LRA.	
Optional use if required *If areas of the system are not accessible system conditions were noted from the previous assessment and any records that were made available to the assessor.*	Low	N/A	
	Medium	Not areas accessible but the assessor could garner sufficient information from the existing assessment and/or site records.	
	High	Poor access and no previous LRA or records for reference. POSTPONE AND RESCHEDULE LRA.	

Section 4 – Desk Top Appraisal

RISK ASSESSMENT SCORING – RECORD KEEPING SYSTEMS			
Criteria	**Key to scores**		**Risk assessment score**
Are there sufficient details for the Calibration of equipment	Low	Calibration in date and kept in the Logbook	High
	Medium	Calibration out of date however interim checks are completed	
	High	No records in place or out of date	
Is training and competency sufficient for nominated authorities (Statutory Duty Holder, Responsible Person etc.)	Low	All authorities have had sufficient training and checks completed on staff	High
	Medium	As above but with some gaps and improvements required	
	High	No authorities in place site staff have had no checks or training completed.	
Have all Contractors been identified and assessed for Competency and adequate training.	Low	All identified, training and competencies all up to date.	HIGH
	Medium	All identified but some missing (or lapsed) and improvements required	
	High	None identified and not in place	

Section 5 – Corrective Action Summary

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
	Other remedial actions for good practice are given without a risk rating.

Key to Codes for Action References

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

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.	Ensure Allocations of `Responsibilities is completed for Site	HIGH		
RRK5	We strongly recommend that those personnel involved in the control and maintenance of the systems undertake Legionella awareness training.	Ensure personnel with responsibilities for Legionella control have suitable training			

Action(s) Required for Advised Control Programme

Action Reference	Recommendation(s)	Details	Risk	Completed	Signed / Date
RCP6b	Suggested improvements to sites Legionella Control programme should be reviewed and implemented.	Refer to Section 6b for Legionella Control Programme as advised from this Risk Assessment.	HIGH		

Section 5 – Corrective Action Summary

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

Action Reference	Recommendation(s)	Details	Risk	Completed	Signed / Date
RCW7a	Fit vermin screens to overflow pipe.	See Section 7 T01, T02	HIGH		

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

Action Reference	Recommendation(s)	Details	Risk	Completed	Signed / Date
RCW9	Label tank(s) to clearly identify asset number(s) / name(s).	See Section 7 T01/02	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)	Details	Risk	Completed	Signed / Date
RC2	Adjust Calorifier temperature so that water is stored at 60ºC minimum and is delivered to the outlets reaches at least 50ºC within one minute of turning on the tap. If this is not possible we recommend that further investigation be conducted to establish possible limitations in system design.	See Section 8 C01, C02	HIGH		

Action(s) Required for Calorifier(s) (Direct or Indirect.

Action Reference	Recommendation(s)	Details	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.	See Section 8 C01, C02	MEDIUM		
RC7a	Turnover is satisfactory however be aware that during certain periods turnover may be less than average. In these instances implement a weekly flushing of supplied outlets.				

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

Action Reference	Recommendation(s)	Details	Risk	Completed	Signed / Date
RHC1a	Investigate non-complaint temperatures found during the survey	See section 11	HIGH		

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

Action Reference	Recommendation(s)	Details	Risk	Completed	Signed / Date
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	MEDIUM		

Section 5 – Corrective Action Summary

Action(s) Required for Shower(s).

Action Reference	Recommendation(s)	Location(s)	Risk	Completed	Signed / Date
RS1	Remove infrequently used showers. If removed ensure that redundant pipe work is cut back so that a dead-leg is not formed. If not removed ensure that the outlet is flushed to drain at least weekly, without releasing an aerosol. Record task in site logbook.	If any flat becomes vacant for over a week	HIGH		

Section 6a – Current Legionella Control Program

System	Daily	Weekly	Monthly	Quarterly	Six-monthly	Yearly
Cold water mains supply to site (drinking water) Potable tests **- No**						
Cold water storage tanks						
Temperature checks - **No**						
Visual and temperature inspection in summer months - **No**						
Legionella tests - **No**						
Clean and disinfection of Tank(s) (Dependant on Inspection) - **Yes**						✓
Calorifiers/domestic hot water storage vessels						
Temperature checks (flow and return) **- No**						
Domestic cold water services						
Run infrequently used outlets - **No**						
Temperature checks of sentinels and representative outlets – **No – only communal regular**						
Legionella tests - **No**						
Inspect/descale outlets - **No**						
Domestic hot water services						
Run infrequently used outlets - **No**						
Temperature checks of sentinels and representative outlets – **No – only communal regular**						
Legionella tests - **No**						
Inspect/descale outlets - **No**						
Domestic showers and spray taps						
Run infrequently used outlets - N**o**						
Inspect/descale outlets - **No**						
Legionella tests - **No**						

Section 6b – Advised Legionella Control Program

This programme is based on a combination of the guidance contained in documents such as those listed in Appendix 4.

System	Daily	Weekly	Monthly	Quarterly	Six-monthly	Yearly
Cold water mains supply to site (drinking water) Potable tests - **Yes**						✓
Cold water storage tanks						
Temperature checks - **Yes**					✓	
Potable tests if servicing drinking water outlets - **NA**						
Visual and temperature inspection in summer - **Yes**						✓
Legionella tests - **Yes**						✓
Clean and disinfection of Tank(s) (dependant on inspection) – **N/A**						
Calorifiers/domestic hot water storage vessels						
Temperature checks (flow and return) -**Yes – arrange access to flats 3 & 6 monthly**			✓			
Domestic cold water services						
Run infrequently used outlets - **Yes**		✓				
Temperature checks of sentinels and representative outlets - **Yes**			✓			
Legionella tests - **Yes**						✓
Inspect/descale outlets - **Yes**						✓
Domestic hot water services						
Run infrequently used outlets - **Yes**		✓				
Temperature checks of sentinels and representative outlets - **Yes**			✓			
Legionella tests - **Yes**						✓
Inspect/descale outlets - **Yes**						✓
Domestic showers and spray taps						
Run infrequently used outlets - **Yes**		✓				
Inspect/descale outlets - **Yes**				✓		
Legionella tests - **Yes**						✓

Section 7 – Cold Water Storage Tank(s)

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Location: Flat 7 Bathroom							
Floor: 2nd	Designation: T01						**Action Reference**:
Tank Dimensions (M):	H: 0.4 W: 0.4 L: 1.0						
Tank Capacity (L):	450 Approx						
Tank Manufacturer/Construction:	Plastic						
Lid Construction:	Plastic				No Lid	☐	
Stagnation:	No	✓			Yes	☐	
Sediment	Nil / Light	✓	Medium	☐	Heavy	☐	
Corrosion:	Nil / Light	✓	Medium	☐	Heavy	☐	
Scale:	Nil / Light	✓	Medium	☐	Heavy	☐	
Tank Flow: (inlet/outlet)	Opposed	✓	Part Opposed	✓	Not Opposed	☐	
Inlet(s) & Outlet(s) valved?	Yes	✓	No	☐			
Labelling:	Tank	✓	Make-up	☐	Outlet(s)	☐	RCW9 RCW10
Insulation:	Good	✓	Average	☐	Poor	☐	
Details:							
Overflow Screened?	Yes	☐			No	☐	RCW7a
Size of Pipework (mm):	35mm						
Air Vent Fitted?	Yes	✓			No	☐	
Warning Pipe:	Yes	☐	N/A	✓	No	☐	
Warning Pipe Screened?	Yes	☐	N/A	✓	No	☐	
Size of Pipework (if applicable):							
Estimated Tank Turnover:	Good	✓	Average	☐	Poor	☐	
Water Meter Present?	Yes	☐	No	✓			
Tank Make-up:	Mains						
Temperature (°C):	Make up:	18	Tank:	18			
Rating:	<20°C	✓	>20°C	☐	>2°C diff.	☐	
Inspection Hatch:	Yes	✓	No	☐			
Is Tank Treated?	Yes	☐	No	✓			
Vent discharges into tank?	No	✓	Yes	☐	Info overflow		
Booster pumps rotated weekly?	Yes	☐	No	☐	N/A	✓	
Dead-leg or blind end:	No	✓		☐	Yes	☐	
Is there an expansion vessel on the booster pump?	No	☐	N/A	✓	Yes		
Is Expansion Vessel fitted correctly?	Yes	☐	N/A	✓	No	☐	
Can Expansion Vessel be flushed	Yes	☐	N/A	✓	No	☐	
Is EV a dead-leg risk?	No	☐	N/A	✓	Yes	☐	
Does tank turnover within 24 hours	Yes	✓	N/A	☐	No	☐	
If Parallel tank configuration, are ball valves synchronised?	Yes	☐	N/A	✓	No	☐	
Does tank require replacement?	No	✓			Yes	☐	
Access Details					Unsafe	☐	

*** If multiple of the same make & models list designations & locations here:**

Designation:	Location:	Action Reference(s)
T02	F8 Bathroom	RCW9, RCW10, RCW7a

Notes:

Consider removal of tanks and convert to mains.

Section 8 – Calorifier(s) (Direct or Indirect)

Location: Flat 4								
Floor:	1st	*Designation: C01						**Action Reference**
Make & Model:								
Dimensions (M):		H 1.0	Ø: 0.45	OR	H:	L:	W:	
Capacity (L):		170						
Construction:		Copper						
How is it vented?		Into tank overflow						
Heat Source:		Primary & Immersion						
Backflow prevention?		Yes	☐	No	☐	N/A	✓	
Labelling:		Vessel	☐	Make-up	☐	Flow (&return)	☐	RC6
Insulation:		Good	✓	Poor	☐			
Details:								
Flow Temperature		>60ºC	☐	50°C		<60ºC	☐	RC2
Return Temperature		>50ºC	☐	N/A		<50ºC	☐	
Estimated Turnover:		Good	☐	Average	✓	Poor	☐	RC7a
Vessel make up:								
Drain on unit?		Yes	☐	No	✓			
Inspection Hatch:		Yes	☐	No	✓			
Is Anti-Strat pump Fitted?		Yes	☐	No	✓			
Stratification evident?		No	✓			Yes	☐	
Are dead-ends present?		No	✓			Yes	☐	
Is there an expansion vessel on the pipe work?		No	✓	Cold Pipe work	☐	Hot Pipe work	☐	
Is expansion vessel fitted correctly?		Yes	☐	N/A	✓	No	☐	
Can Expansion Vessel be Flushed		Yes	☐	N/A	✓	No	☐	
Does the expansion vessel present a dead-leg risk?		No	☐	N/A	✓	Yes	☐	
Access details:								

*** If multiple of the same make & models list designations & locations here:**

Designation:	Location:	Action Reference(s)
C02	Flat 3	Flow 27°C - RC6, RC2,RC7a (T02 Feed)

Notes:

Consider removal of C0's and fitting localised WH's in flats as only feed 4x kitchen sinks and 4x bathroom WHB only each.

Section 9 – Water Heater(s)

None on site

Part Two

Section 10 – Hot and Cold Water Services Risk Summary

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			Yes/ No?	Action Reference
Are all temperatures compliant at the time of survey?			No	RHC1a
Do TMVs supply multiple outlets?			No	
Are there any TMV spurs >1m in length?			No	
Are spray inserts present on outlets?			No	
Are low use showers flushed to drain weekly?			*No	RS1
Scale present on showerheads?			No	
Do raised HW temps indicate scald risk			No	
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?		No	
	Washing machine (domestic)?		N/A	
	Live connection to heating system?		No	
	Bib tap(s)?		No	
	Process water with inadequate protection to mains water supply?		N/A	
	Care home washing machine?		N/A	
	Other:			
	Other:			

Key	Risk
	LOW
	MEDIUM
	HIGH

Notes: TMV = Thermostatic Mixer Valve. HWS = Hot Water Services. CWS = Cold Water Services

*If any flats become vacant for a period of time

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

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Building:		Source/ Temps ºC															
Locations:																	
Rooms	Assets	Mains	Tank Fed	HWS	Sentinel Hot	Sentinel Cold	TMV Present / Temps ºC	TMV' s Isolatable	Thermostatic Shower / taps	Mixer	Filters	Spray Inserts / Spray producing	Dead-leg/end (insert a ✓ or l)	Hose WRAS? Y/N	Low Use	Suggested Sampling Point
Ground Floor																
Kitchen	S	18		40	✓	✓										✓
Toilet Ladies	WC		✓													
	WHB		22	47												✓ c
Gents	WC		✓													
	WHB		✓	49		✓										
Laundry	WM	✓														
Outside	BT	✓													✓	✓
Flat 8	WC		✓													
	WHB		17	27		✓										
	ES			✓												
	S	17		✓	✓	✓										✓
Flat 3	WC		✓													
	WHB		✓													
	ES			✓												
	S	✓		29	✓											
Flat 7	WC		✓													
	WHB		22	50		✓										✓ c
	ES			✓												
	S	18		50	✓	✓										✓ h
Flat 4	WC		✓													
	WHB		✓	✓												
	ES			✓												
	S	✓		50	✓											

No access to flats 1,2,5,6 (all identical)

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

ges-water.co.uk

Key for Section 12 Abbreviations (add additional if required)

BD = Bidet
BS = Belfast Sink
BT = Bib Tap
C = Cold
CM = Coffee Machine
CWS = Cold Water Service
DD = Drinks Dispenser
DE = Deadend
DF = Drinks Fountain
DL = Deadleg
DW = Dishwasher
DWD = Drinking Water Dispenser
ES = Electric Shower
FD = Flushing Device
? = TMV hidden behind panel
GSE* = Rooms grouped together, and assets spread evenly across each room.
FHR = Fire Hose Reel
F = Furthest
GA = Grease Shield
H = Hot
HWS = Hot Water Service
I = Deadleg impractical to remove
MXH = Mixer Shower
N = Nearest
PP = Potato Peeler
S = Sink
SD = Shared TMV (schematic)
SH = Shower
SO = Steam Oven
SS = Spray Sink
r = Hot Water Return Loop
STSH = Steam Shower
T = Thermostatic Tap
TMV = Thermostatic Mixing Valve
TP = Tea Point
U = Urinal
VM = Vending Machine
WB = Water Boiler
WC = Toilet
WF = Water Feature
WHB = Wash Hand Basin
WM = Washing Machine
WRAS = Water Regulations Advisory Scheme
SSH = Spray Shower
B =Bath
IWT = Instant Hot Water Tap
SP = Sampling Point

Suggested Sampling Point:

Guidance for the Assessor is in line with HSG 274 part 2, 2.122 and will include any other outlets that the Assessor has noted during the assessment as being a potentially higher risk outlet. This may be due to several factors, such as poor temperature; heavy scale build-up; suspected low use; or because of its ability to create aerosols.

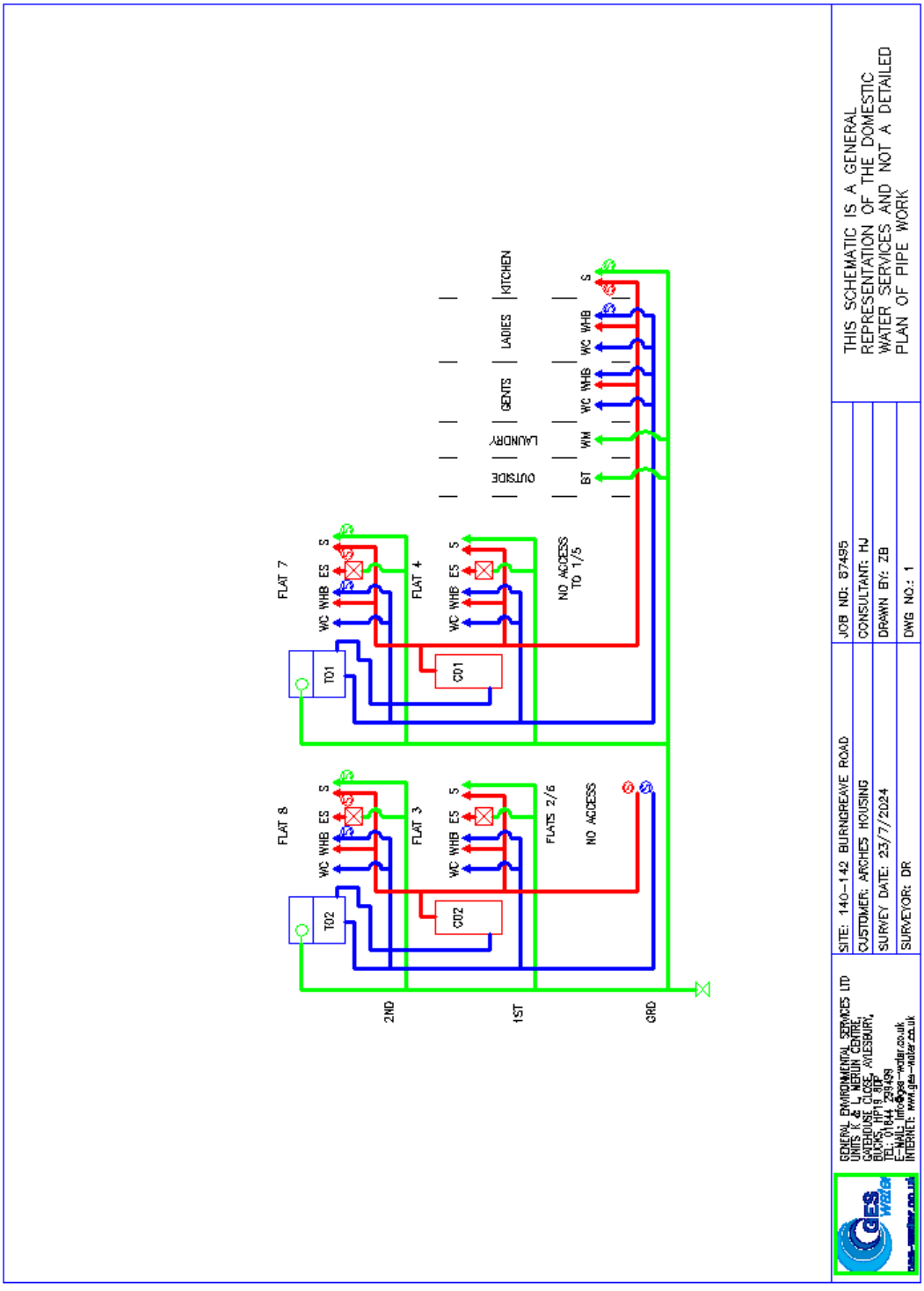
By default, assume the advice is to sample hot water service for Legionella, if cold is suggested a small "c' will follow the tick.

Section 12 – Other Risk Systems

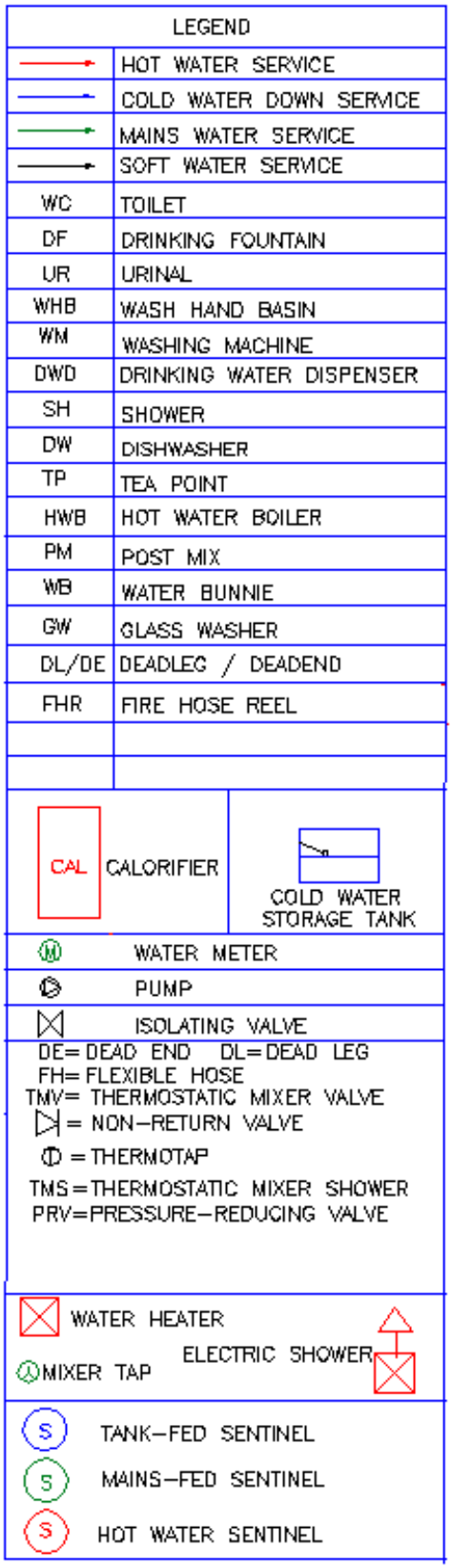
No other risk systems present

Section 13 – Schematics

The diagram below gives a simplified overview of the water systems on site. They are based on our observations during the survey and information obtained from site staff.



Section 13 – Schematics



Appendix 1
Introduction to Legionella Risk Assessment

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

Appendix 1
Introduction to Legionella Risk Assessment

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 20ºC
- Spa baths and pools where the water is deliberately agitated
- Other plant and systems containing water which is likely to exceed 20ºC and which can release a spray or aerosol

1. 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 -19ºC	---	Legionella will remain dormant
20 - 45ºC	---	Legionella will multiply
60ºC and above	---	Legionella will not survive

Appendix 1
Introduction to Legionella Risk Assessment

b) Stored Cold Water Systems

Correctly maintained cold water services should present little risk during normal operation. However, several factors if not controlled, greatly increase the risk.

- **Temperature Control**

  Cold water must be maintained below 20ºC 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. Several factors can be controlled to minimise the risk.

- **Temperature Control**

  A calorifier or water heater must be capable of heating its contents to 60ºC. At the outlets a temperature of 50ºC 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.

Appendix 1
Introduction to Legionella Risk Assessment

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. RIDDOR

Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR) 8 These regulations require employers and those in control of premises to report accidents and some diseases that arise out of or in connection with work to HSE. Cases of legionellosis are reportable under RIDDOR if a medical practitioner notifies the employer; and the employee's current job involves work on or near cooling systems that are located in the workplace and use water; or work on water service systems located in the workplace, which are likely to be a source of contamination. For more information, see HSE guidance at www.hse.gov.uk/riddor/index.htm

6. Additional Considerations

a) Potential Scalding Risk

Where the temperature of the hot water exceeds 60ºC 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 41ºC ± 2ºC. Measures should be taken to either reduce the temperature to 41ºC ± 2ºC 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

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.

Appendix 2
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 than100 cfu/l and up to 1000	Either: (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 (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.
More than1000 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 internals afterwards until a satisfactory level of control is achieved.

Appendix 2
Actions Following Legionella Detection

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	Either: (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 (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.
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.

Appendix 2
Actions Following Legionella Detection

HSG274 Part 2. Appendix 2.3

Appendix 2.3 Action to take if there is an outbreak of legionellosis

1 In England and Wales, legionnaires' disease is notifiable under the Health Protection (Notification) Regulations 2010[37] and in Scotland under the Public Health (Notification of Infectious Diseases) (Scotland) Regulations 1988.[38] Under these Regulations, human diagnostic laboratories must notify Public Health England (PHE), Public Health Wales (PHW) or Health Protection Scotland (HPS) (see 'Further sources of advice') of microbiologically confirmed cases of legionnaires' disease.

2 An outbreak is defined as two or more cases where the onset of illness is closely linked in time (weeks rather than months) and where there is epidemiological evidence of a common source of infection, with or without microbiological evidence. An incident/outbreak control team should always be convened to investigate outbreaks. It is the responsibility of the Proper Officer to declare an outbreak. The Proper Officer, appointed by the Local Authority, is usually a Consultant in Communicable Diseases Control (CCDC) in England and Wales, or the Consultant in Public Health Medicine (CPHM) in Scotland. If there are suspected cases of the disease, medical practitioners must notify the Proper Officer in the relevant local authority.

3 Local Authorities will have jointly established incident plans to investigate major outbreaks of infectious diseases, including legionellosis, and it is the Proper Officer who activates these and invokes an Outbreak Committee, whose primary purpose is to protect public health and prevent further infection.

4 HSE or local Environmental Health Officers may be involved in the investigation of outbreaks, their aim being to pursue compliance with health and safety legislation. The local authority, Proper Officer or EHO acting on their behalf will make a visit for public health reasons, often with the relevant officer from the enforcing authorities (ie HSE or the local authority) for health and safety reasons. Any infringements of relevant legislation may be subject to a formal investigation by the appropriate enforcing authority.

5 There are published guidelines (by PHE, PHW and HPS) for the investigation and management of incidents, clusters, and outbreaks of legionnaires' disease in the community.

6 These are, for England and Wales, *Guidance on the Control and Prevention of Legionnaires' Disease in England*[39] and for Scotland, *Guidelines on Management of Legionella Incidents, Outbreaks and Clusters in the Community*.[40]

7 If a water system is implicated in an outbreak of legionnaires' disease, emergency treatment of that system should be carried out as soon as possible. This will usually involve the processes detailed in paragraphs 2.124–2.135.

Appendix 3

Recommended Inspection Frequencies for Risk Systems

HSG274 Part 2. Table 2.1: Checklist for hot and cold-water systems.

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

Appendix 3

Recommended Inspection Frequencies for Risk Systems

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

Appendix 3

Recommended Inspection Frequencies for Risk Systems

Multiple use filters	Backwash and regenerate as specified by the manufacturer	According to manufacturer's guidelines
Infrequently used outlets	Consideration should be given to removing infrequently used showers, taps and any associated equipment that uses water. If removed, any redundant supply pipework should be cut back as far as possible to a common supply (eg to the recirculating pipework or the pipework supplying a more frequently used upstream fitting) but preferably by removing the feeding 'T' Infrequently used equipment within a water system (ie not used for a period equal to or greater than seven days) should be included on the flushing regime Flush the outlets until the temperature at the outlet stabilises and is comparable to supply water and purge to drain Regularly use the outlets to minimise the risk from microbial growth in the peripheral parts of the water system, sustain and log this procedure once started For high risk populations, eg healthcare and care homes, more frequent flushing may be required as indicated by the risk assessment	Weekly, or as indicated by the risk assessment
TMVs	Risk assess whether the TMV fitting is required, and if not, remove Where needed, inspect, clean, descale and disinfect any strainers or filters associated with TMVs To maintain protection against scald risk, TMVs require regular routine maintenance carried out by competent persons in accordance with the manufacturer's instructions. There is further information in paragraphs 2.152– 2.168	Annually or on a frequency defined by the risk assessment, taking account of any manufacturer's recommendations
Expansion vessels	Where practical, flush through and purge to drain. Bladders should be changed according to the manufacturer's guidelines or as indicated by the risk assessment	Monthly–six monthly, as indicated by the risk assessment

Appendix 3

Recommended Inspection Frequencies for Risk Systems

HSG274 Part 3. Appendix 3.1:
Checklist for recommended frequency of inspection for other risk systems

System/service	Task	Frequency
Ultrasonic humidifiers/ foggers and water misting systems	If the equipment is fitted with UV lights, check to ensure the effectiveness of the 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	Clean and disinfect spray humidifiers and make-up tanks, including all wetted surfaces, descaling as necessary	Six monthly
	Confirm the operation of non-chemical water treatment (if present)	Weekly
Air washers, wet scrubbers, particle and trivial gas scrubbers	Clean and disinfect air washers, wet scrubbers, particle and trivial gas scrubbers and water storage tanks	As indicated by risk assessment
	Apply, monitor, and record the results of the water treatment	As indicated by risk assessment
Water softeners	Clean and disinfect resin and brine tank – check with the manufacturer what chemicals can be used to disinfect resin bed	As recommended by manufacturer
Emergency showers, eyebaths and face-wash fountains	Flush through and purge to drain ensuring three to five times the volume of water in the stagnant zone is drawn off	As indicated by risk assessment, but at least every six months
	Inspect water storage tanks (where fitted)	Monthly
	Clean and disinfect shower heads, nozzles, roses, 'Y' strainers, and water storage tanks (where fitted)	Quarterly, or more frequently, as indicated by the risk assessment
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

Appendix 3

Recommended Inspection Frequencies for Risk Systems

System/service	Task	Frequency
Spa pools	Detailed HSE/PHE guidance on the management of spa pools is available in *Management of spa pools: Controlling the risks of infection*	
Whirlpool baths	Clean, flush and disinfect air channels Remove, flush and clean jets	As indicated by risk assessment
Horticultural misting systems	Clean and disinfect distribution pipework, spray heads and make-up tanks including all wetted surfaces, descaling as necessary	Quarterly or as indicated by risk assessment
Dental equipment	Drain down, clean, flush and disinfect all system components, pipework and bottles	Twice daily (typically at the start and finish of each working day). Disinfectant contact time as recommended by the manufacturer
	Clean storage bottles, rinse with distilled or Reverse Osmosis (RO) water, drain, and leave inverted overnight	Daily
	Take microbiological measurements – refer to *Decontamination Health Technical Memorandum 01-05: Decontamination in primary care dental practices*[5]	As indicated by risk assessment
Vehicle wash systems	Check and clean filtration systems, collection tanks and interceptor tanks and check treatment system A biocide programme should be in place and should be monitored and controlled similar to the standards required in cooling towers Clean and disinfect system and ensure sludge tanks are emptied	As indicated by risk assessment
	Sample for legionella	Initially to establish that control has been achieved and thereafter quarterly or as indicated by risk assessment
Fountains and water features	Clean and disinfect ponds, spray heads and make-up tanks including all wetted surfaces, descaling as necessary	As indicated by the risk assessment, and depending on condition

Appendix 3

Recommended Inspection Frequencies for Risk Systems

System/service	Task	Frequency
Industrial process water systems	Conduct a risk assessment of each system, preferably using an assessment team comprising members knowledgeable in legionella management and control, as well as those familiar with the design and operation of the system Devise a control scheme based on this risk assessment	Monitoring, inspection, and testing frequencies to be determined as indicated by the risk assessment

Appendix 4
Glossary of Terms

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.

Appendix 4
Glossary of Terms

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).

Appendix 4
Glossary of Terms

References

In preparing this risk assessment, we have referred to the following documents, which should be consulted for further information:

- Approved Code of Practice & Guidance: 'Legionnaires' disease - the control of legionella bacteria in water systems' (L8, Fourth Edition). Health and Safety Executive 2013.
- HSG 274 Parts 1, 2 & 3 Legionnaires Disease Technical Guidance: HSE 2013 & 2014.
- Health Technical Memorandum 04-01 – The control of Legionella, hygiene, "safe" hot water, cold water and drinking water systems. Published for NHS Estates by TSO 2016.
- Control of Substances Hazardous to Health Regulations 2002 (COSHH). (6th Edition) Health and Safety Executive 2013.
- CIBSE Technical Memorandum (TM13): Minimising the risk of Legionnaires' disease. Chartered Institute of Building Services Engineers 2013.
- Notification of Cooling Towers and Evaporative Condensers Regulations 1992.
- Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR).
- The Safety Representatives and Safety Committees Regulations 1977 and the Health and Safety (Consultation with Employees) Regulations 1996.
- BS EN 806-5:2012: Specifications for installations inside buildings conveying water for human consumption. Operation and maintenance.
- BS 8558:2011: Guide to the design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages. Complementary guidance to BS EN 806.
- Water fittings and Materials Directory. Water Regulations Advisory Scheme.
- The Water Supply (Water Fittings) Regulations 1999. The Stationery Office Limited, 1999.
- The Water Regulations Guide. Water Regulations Advisory Scheme, 2000.
- British Standard BS 8580-1: 2019 Risk Assessments for Legionella Control. British Standards Institution 2019
.
- HSG 282 Control of legionella and other infectious agents in spa-pool systems HSE 2017
- HSG 65: Managing for health and safety. HSE 2013
- HSG 220: Health and safety in care homes

HSG274 Part 2. Appendix 2.2: Legionella Written Control Scheme

Appendix 2.2 Legionella written control scheme

1 The risk from exposure will normally be controlled by measures which do not allow the proliferation of legionella bacteria in the system. Once the risk is identified and assessed, a written control scheme should be prepared, implemented and properly managed for preventing or controlling legionella.

2 The scheme should specify the various control measures, how to use and carry out those measures, describe the water treatment regimes and the correct operation of the water system. The scheme should be specific and tailored to the system covered by the risk assessment. Along with the guidance in this document, this appendix summarises the information to include in a legionella written control scheme, ie:

- purpose;
- scope;
- risk assessment;
- management structure:
  - dutyholder;
  - responsible person(s) and communication pathways;
  - training;
  - allocation of responsibilities, ie to the dutyholder, responsible person(s) and water treatment service provider;
- up-to-date schematic plan showing the layout of the system(s) and its location within and around the premises – this should identify piping routes, storage and header tanks, calorifiers and relevant items of plant, especially water softeners, filters, strainers, pumps and all water outlets;
- the correct and safe operation of the system;
- precautions in place to prevent or minimise risk associated with the system;
- analytical tests, including microbiological testing, other operational checks, inspections and calibrations to be carried out, their frequency and any resulting corrective actions;
- remedial action to be taken in the event that the scheme is shown not to be effective, including control scheme reviews and any modifications made;
- health and safety information, including details on storage, handling, use and disposal of any chemical used in both the treatment of the system and testing of the system water;
- incident plan, which covers the following situations:
  - major plant failure, eg chemical system failure;
  - very high levels or repeat positive water analyses for legionella;
  - an outbreak of legionellosis, suspected or confirmed as being centred at the site;
  - an outbreak of legionellosis, the exact source of which has yet to be confirmed, but which is believed to be centred in an area which includes the site.

Appendix 6 – Population Susceptibility, Risk Categories

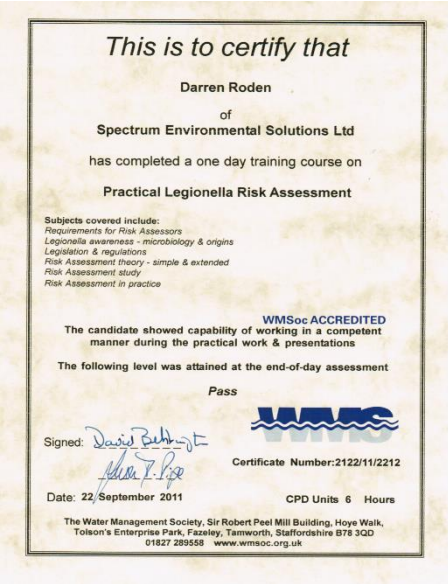
Description of Persons on Site	Risk Category
School Pupils	Low
College/University Pupils	Normal
Contractors working on water systems	Normal
General Public	Normal
Site Personnel	Normal
Children up to 4 years old	Low
Outpatients	High
Elderly Persons	High
Drug / Alcohol Addicts	High
Immuno-suppressed	Very 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

Appendix 7 – Review Guidance

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

Appendix 8
Assessor Competency Certificate & Impartiality Agreement



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:

Certificate Number:2122/11/2212

Date: 22 September 2011

CPD Units 6 Hours

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

This is to certify that

Mr Darren Roden

of

GES Water

has completed a one day training course on

Practical Legionella Risk Assessment Hot & Cold Water Systems Advanced

Subjects covered include:
Legionella medical aspects and the legal requirements for Risk Assessors
The written scheme
Risk Assessment theory - simple & extended
Reviewing records, credibility and competence assessments
Practical guidance on preparing for and carrying out Legionella Risk Assessment
The questions to ask and how to ask them when risk assessing
Reporting, writing & presenting risk assessment reports

WMSoc ACCREDITED
The candidate showed capability of working in a safe & efficient manner during the practical work & presentations

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

Merit

Signed

City & Guilds ACCREDITED

CPD Units 6 Hours

Date: 07/03/2023

Certificate Number: 8399

C&G Enrolment Number: EZA4946

The Water Management Society recommends that training is refreshed at least every 3 years

The Water Management Society Limited, 6 Fairway Court, Amber Close, Tamworth, Staffordshire, B77 4RP.
Telephone: 01827 289558 www.wmsoc.org.uk

Assessor: Darren Roden

Bio

Darren is a Legionella Risk Assessor with 20 years experience in the field of water hygiene and Legionella Risk Assessments in commercial sectors.

Darren started carrying out Risk Assessments for GES Water as part of his job role in 2016.

Experience

- 12 years experience as a Legionella Risk Assessor
- Attendance at many training courses on legionella, including sessions held by the Water Management Society

Qualifications

- Water Management Society advanced Legionella risk assessment course in March 2023
- Water Management Society HTM 04-01 Water Hygiene Training

Managing and controlling risk of waterborne pathogens in healthcare water systems.

Legionella Risk Assessment Checked for Quality Assurance.

Quality Checked On: 6 September 2024

By: G Davis

Signature:

Appendix 8
Assessor Competency Certificate & Impartiality Agreement

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, jacuzzis 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 Competency Certificate & Impartiality Agreement

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 thereln, 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 be compromised, they are to report the incident to the Managing Director immediately.

Signed D Roden Print Name: DARREN RODEN Date: 27/8/24

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

Appendix 9

Legionella Control Association Membership Certificate

Legionella Control Association

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 Limited**

Registration Number: **2001/1239** Certificate valid until: **31st August 2025**

Registration under the following services categories:

(1) Legionella Risk Assessment Services

1.1 Hot and Cold Water Systems Risk Assessment

1.3 Process and Other Systems Risk Assessment

1.4 Healthcare Risk Assessment

(3) Hot and Cold Water Monitoring and Inspection Services

(4) Cleaning and Disinfection Services

4.1 Hot and Cold Water Systems Cleaning and Disinfection

4.2 Evaporative Cooling Systems Cleaning and Disinfection

4.3 Process and Other Systems Cleaning and Disinfection

(6) Training Services

(7) Legionella Monitoring Services

7.1 Sampling

7.4 Interpretation of Analysis

(8) Plant and Equipment Services

8.3 Servicing/maintenance

8.4 Refurbishment

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

WMS THE WATER MANAGEMENT SOCIETY

Signed: *Chairman, Executive Committee*

Certificate Secretary

BCA British Chemicals Association

Legionella Control Association Limited. www.legionellacontrol.org.uk

Registered in England and Wales No. 8502723

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 at registration and its most recent company audit. It does not confirm the service provider's actual or continuing 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.