CITY OF LONDON CORPORATION
INSPECTION SUMMARY: CONTROL OF LEGIONELLA IN WATER SYSTEMS

Inspection (Work Sheet) Reference: WK/20.....	**Risk Category** (LAC 67)	**Officer:**	Date:

Building Name: Tel No: Emergency (24Hr) No:	Address: Postcode:

Responsible Person: Name: Tel No's:	Position: Company:
Contacts:(Specify: FM, Managing Agent, M&E, Water Treatment, Auditor, Risk Assessor). Name: Tel No's:	Position: Company: ***Leg. Control Assoc.*** member Y / N / n/a
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Inspection summary:

Enforcement response: Prosecution/ Notice/ Letter

System Summary:

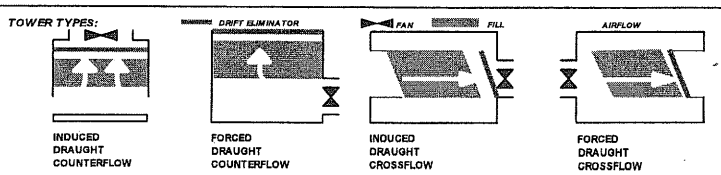
Number of towers:.....**Age:**.....**Location:**.....

Tower Type*: Open Circuit/ with heat exchanger/Closed Circuit/ (True) Evaporative Condenser
*Circle type and indicate configuration using the diagrams below.
Sampling Location(s):.....

Period(s) Operation*: Continuous; 7 day. Timed; Working week/Week Days. Seasonal;
* Delete as appropriate Intermittent; Standby Comments:

Treatment:	Bromine/ Bio-dispersant/ Non-oxidising biocide/ ClO_2/ Ozone/ UV
Dosing:	Automatic: (Feedback)/ (Proportional)/ (Timed)/ Manual:
Bleed Control:	Conductivity/ Proportional/ Continuous/ Timer/ Manual
Softened water:	Yes/ No/ Blended

Hot Water System: Gravity or Pressurised: with/without recirculation/ Other (e.g. heat pump)



Notification				
		Yes	No[1]	Comments
1.	Is the device notified to the Corporation of London and are the details on the notification still correct? (Check the latest notification for accuracy- A .PDF. scanned copy should be on the Actions screen for the cooling tower premises)			

A. Programme Management				
		Yes	No	Comments
1.	Is there an adequate management structure?			
2.	Is the management structure properly recorded, inc contact details in event of an emergency?			
3.	Is there a responsible person nominated in writing?			
4.	Are the duties of all persons involved clearly defined?			
5.	Can all persons involved demonstrate adequate training? (Certificates on file?)			
6.	Are the responsibilities of the occupier and consultant(s) clearly defined? (by contract etc)			
7.	Is the programme audited by an independent third party?			
8.	Is the water treatment company (or auditor) a member of the CCA?			
9.	Are there contingency plans agreed and documented for elevated bacterial results?			
10.	Are there contingency plans agreed and documented for positive legionella results?			

[1] If No then further action maybe required

B. Risk Assessment Legionellosis				
		Yes	**No**	**Comments**
1.	Is there a written risk assessment of the water system (and others likely to pose significant risk e.g. Hot water, showers, fountains, spa pools etc)?			
2.	Has elimination or replacement with a lower risk system been properly considered? (this may have been sometime ago)[2] COSHH principles mean prevention should be considered before control			
3.	Is the risk assessment subject to regular review procedures? [L8-paragraph 38]			
4.	Is the assessment used as a basis for subsequent action, particularly designing and implementing risk control measures			
5.	Does the assessment consider the tower's physical condition?			
6.	Does it consider the tower's positioning? E.g. location of air inlets, proximity to vulnerable groups.			
7.	Have there been any significant changes to the system since the Risk Assessment was completed?			
8.	Are the assessments conclusions sufficient to address the risk?			
9.	Are the assessment recommendations recorded and actioned properly?			

[2] There are many sites in the City where replacement with air blast cooling is not practicable mainly because of space (too little) and electrical loading (considerable increase)

C. Written Scheme, System Description and Safe Operation				
		Yes	**No**	**Comments**
1.	Is there a documented written scheme? We require an appropriate written summary of the scheme of precautions. This summary should enable someone who is not familiar with the site to know quickly the type of system and what precautionary measures are expected to be in place and how they will be managed.			L8 paragraph 53 requires: ☐ An up to date plan [SeeQ.2] ☐ A description of correct and safe operation [SeeQ.3-9] ☐ The precautions to be taken [see Q.10 & parts D. E. F. H for more details on precautions] ☐ Checks to ensure the efficacy of the scheme [See Q.11] ☐ Remedial action in the event scheme shown not effective [Q. 11]
2.	Is there an up to date description and system plan (a schematic will suffice for the plan)? Does this show: ☐ All Cooling Towers ☐ All system control valves? ☐ All Standby plant (e.g. spare pumps)? ☐ All associated storage tanks? ☐ Locations of system bleed valves? ☐ Location of chemical dosing pumps and injection points? ☐ Location of system's drain valve and any sampling points? ☐ The origin of the water supply?			Take a copy
3.	Is there an operation's manual for the water system? If no. ☐ Is there a description of the system that includes design issues pertinent to legionella control? e.g. Access problems for cleaning, pack removal etc. Dead legs, flat bases, by pass loops and balance pipes. ☐ Are there Instructions regarding valve settings for normal operations			
4.	Does the scheme contain instructions for operating the system? The Operating frequency and pattern may be an important risk issue. (record the details of the operating pattern below)			
5.	Does the plant cycle on and off automatically?			

	C. Written Scheme etc. (Continued)	Yes	No	Comments
6.	Confirm the usual operating pattern of the plant? □ Continuously *(i.e. 7 days per week/24 hrs per day)?* □ 24 hrs per day, throughout working week? □ Day shift(s) only, throughout the working week? □ On standby? □ Seasonally?			
7.	**Is the water system or any part(s) temporarily out of use?**			How is this managed
8.	If the water system is used intermittently or is required at short notice is it run at least once a week to enable sufficient water treatment to be achieved? Intermittent use includes standby systems and parts of systems such as pumps			
9.	If the water system is out of use for longer than a week are there procedures in place to bring it back into operation safely? Consider: □ Are there commissioning/ re-commissioning procedures? □ Are there procedures for start up from shutdowns > 1 month? □ Are there instructions for draining during long shutdowns?			
10.	Does the scheme contain a summary of the precautions to be taken to control the risk of proliferation of, or exposure to, legionella? See parts D. E. F. H for more details on typical precautions and the written information and records required.			
11.	Is the effectiveness of written scheme properly monitored? Details of the checks to be carried and their frequency must be included (Further information in parts D. E. F. H. You should also consider the program management and risk assessment (parts A. and B. above).			

D. Water Treatment				
		Yes	No	Comments
1.	Is there a simple description of the water treatment equipment and system so it is clear what is in place and how it is intended to operate?			Take a copy
2.	Is there treatment to control scale?			
3.	Is there treatment to control corrosion?			
4.	Are alternating biocides used?			
5.	How are chemicals dosed?			

E. Clean and Chlorination				
		Yes	No	Comments
1.	Is there a written site specific cleaning and disinfection procedure? Is it carried out at least every six months? If not how often?---------			If tower is not cleaned every six months list reasons and alternative measures taken to ensure the cleanliness of the system
2.	Does the method avoid the creation of unnecessary water spray?			
3.	Is the method for carrying out the cleaning specified			
4.	Are the levels of *Cl* at pre. and post chlorination specified and measured?			
5.	Are *Cl* contact times specified and measured?			
6.	Is the removal of the tower pack included? (if applicable) If not why not?			
7.	Is the whole tower system included e.g. Are break tanks done (where provided), water softener beds etc.?			

F. Monitoring and Records				
		Yes	No	Comments
1.	Are dip slides taken (weekly)? Check action taken if control limits are exceeded. If no action why not?			
2.	Are dip slides taken from the point nearest the heat source? If no, what location-			
3.	Is there an incubator on site? Where			30°C 48 hours
4.	Is the pH measured (weekly)?			
5.	Is the electrical conductivity checked and measured (weekly)?			
6.	Are physical checks made on the cleanliness/condition of the system (weekly)? If not why not?			
7.	Are the drift eliminators and water distribution systems checked (monthly to 3 monthly according to risk)			
8.	Are chemical water quality checks carried out at least monthly?			
9.	Are Total Viable Counts taken (monthly)?			
10.	Are legionella tests conducted (quarterly)?			
11.	Results of all tests and checks recorded, together with details of any remedial action taken (if required)			
12.	Are the tests and checks conducted signed off or authenticated in some other way?			
13.	Are control limits known and clearly stated?			
14.	Recommendations for any further remedial action recorded.			
15.	Completion of all remedial action recorded.			
16.	Are there records of plant usage?			
17.	How do they measure water usage in the system?			
18.	Are results recorded so trends over time can be seen? E.g. graphically or on computer			

G. Physical Condition and Design.				
		Yes	No	Comments
1.	Are the drift eliminators high efficiency in good condition and effective? [There should be no readily apparent emission of droplets in the exit air-stream. Where it is possible to look from the inlet to outlet air-path there should be no daylight visible YOU ARE NOT REQUIRED TO CHECK DRIFT WITH THE TOWER OPERATING]			
2.	Is condition of pond water satisfactory e.g. clean clear free of excess foam or the build up of silt (in the sump)?			
3.	Is the tower interior in good order free from excess scale and rust spots?			
4.	Is the water distribution system in the tower accessible, clean and well maintained (free from scale etc)			
5.	Is there evidence that the flow of water across the tower is not even?			
6.	Has any redundant plant been isolated from the system?			
7.	Is there any biofilm? Any algal growth?			
8.	Are the tower controls in good order and accessible (dosing lines, meters, pumps, valves, conductivity probes)?			
9.	Are there signs of water leaking from tower or pipework?			
10.	Is the exterior of the tower in good condition?			
11.	Are any make up tanks in good condition? Any visual problems with water quality?			

H. Hot and Cold Water Services				
		Yes	No	Comments
1.	Are there procedures for avoiding water temperatures between 20°C and 45°C?			
2.	Are hot and cold water temperatures measured and recorded?			

3.	Is circulated hot water > 50°C?		
4.	Is the Calorifier temperature > 60°C?		
5.	Are cold water tanks and taps < 20°C?		
6.	In the Calorifier is stratification avoided e.g. with anti strat pump./horizontal cylinder etc.?		
7.	Are there procedures to avoid stagnation or short cycling in the storage tanks? E.g. delayed action ball valves opposing in/outlets		
8.	Has water usage been assessed?		
9.	Is the tank turnover<24 hours?		
10.	Is low occupancy likely to lead to low water usage?		
11.	Have materials in the system which could promote microbial growth been avoided e.g. Water Supply Regulations Approved?		
12.	Are *BS6700* procedures in place for cleaning and chlorination and thermal disinfection?		
13.	Are special features such as humidifiers, fountain and showers properly controlled?		

Operational Health and Safety				
Manual Handling				
		Yes	**No**	**Comments**
1.	Has an assessment of manual handling risks been completed?			Consider MSD Topic inspection and if applicable rate
2.	Are there instructions/systems of work for minimising manual handling problems			
Chemical Handling and Storage				
		Yes	**No**	**Comments**
1.	Has a COSHH assessment been conducted?			
2.	Have precautionary measures been identified?			
3.	Are they adequate?			

	Access			
		Yes	No	Comments
1.	Have the risks for access to the plant areas been considered?			
2.	Where necessary is roof edge protection available?			
3.	Access ladders installed. If >2m are they protected.			
4.	Is lighting adequate?			
5.	Is there sufficient space to undertake the necessary maintenance tasks?			
6.	Is there a permit system for access to the building and plant rooms?			
7.	Procedures in place re lone working in hazardous areas?			
8.	Are there appropriate safety procedures for the cleans? [See also E. 1 &2 above that consider health issues and systems of work]			
9.	Procedures for work in confined spaces?			
10.	Refrigerant gases Are there sufficient controls to deal with a leak? ☐ Is there low level extraction? ☐ Pressure relief devices piped to discharge safely? ☐ Can chillers be isolated remote from danger? ☐ Is there gas detection provided and a suitable alarm? ☐ Is it clear what action should be taken when an alarm sounds? ☐ Could leaking gas cause a health risk?			