LCA STANDARD FOR THE DELIVERY OF WATER TREATMENT SERVICES

A) WHAT DOES THIS STANDARD COVER?

1 This service standard is for those involved in the development and application of a water treatment programme in all types of water systems, whether by chemical or non-chemical means where something is being added, conditioned or changed in the system water, to control Legionella. This is divided into the following three sub-categories:

- a. Hot and Cold Water Services Water Treatment
 - *i.* Private water supply treatment where Legionella is being controlled
 - *ii.* Treatment of down water services with potable biocides, water conditioners or physical methods in building services
- **b.** Evaporative Cooling Systems Water Treatment
- c. Other Risk Systems Water Treatment
 - *i.* Industrial process water systems including papermills, factories, metal working fluids, air scrubbers, etc.
 - *ii.* Spa pool water treatment
 - iii. Any other water system where Legionella control activity is undertaken by water treatment
- 2 This standard includes the:
 - a. Design of the water treatment programme
 - **b.** Use of water treatment equipment within a water treatment programme
 - c. Supply of water treatment chemicals or other consumables
 - **d.** On-site analytical and monitoring of the water treatment programme, when carried out as part of that programme
 - e. Associated corrective action
 - f. Reporting and record keeping
- **3** This standard excludes:
 - a. Laboratory analysis (covered under the Legionella Sampling and Testing standard)
 - b. Temperature control (covered under the Hot and Cold Water Monitoring and Inspection standard)
 - c. Cleaning and disinfection (covered under the Cleaning and Disinfection standard)
 - **d.** Monitoring of biocide and/or chemical treatment residual in hot and cold water systems as a stand-alone service, when applied by others (covered under the Hot and Cold Water Monitoring and Inspection standard)
 - e. Provision of water treatment dosing and control equipment (covered under the Plant and Equipment standard)

Information Box 1: Water Treatment Technologies

It is not the role of the LCA or this standard to prescribe particular techniques or technologies for the control of Legionella bacteria in a risk system; however, whatever method is employed, the overall water treatment programme should be capable of delivering the desired outcomes, such as: scale, microbial, corrosion, fouling control, etc. These outcomes may be dependent on the nature of the water, the system being treated, the client's expectations and performance specification, if any.

B) COMPETENCE OF STAFF (INCLUDING SUB-CONTRACTORS)

- 4 There are six main areas of competence necessary in the delivery of these services:
 - a. Obtaining the required information to design the service (The Surveyor)
 - **b.** Designing and costing the water treatment programme including selection of products and defining the scope of service (The Designer)
 - c. Planning and initiation of the programme (The Planner)
 - **d.** Carrying out the water treatment, analysis, monitoring and inspection tasks and interpreting the results (The Technician)
 - e. Reporting and communicating the findings and recommendations (The Reporter)

f. Ensuring the service has been delivered to the LCA Member's company procedures (The Auditor)

5 These six job aspects require different knowledge, skills and experience to be competent and will vary with the water system type.

6 The LCA Member should identify the skills required for the relevant task, provide appropriate training and assess the competence of the operative to carry their assigned tasks.

C) SERVICE DELIVERY

7 The LCA Member should have documented procedures for the design, execution and management of the required water treatment programme as detailed under sections 1-6 below.

Section 1: Information Gathering / System Survey

8 Before agreeing a scope of works with the service user it is essential to gather sufficient information to appropriately plan the work. Development of a scope of work may be a multistage process with caveats and stages in development. A survey, discussion or review of a specification may be appropriate to gather information, e.g. on a structured survey form or aide memoire.

9 The survey / information gathering should include, as appropriate:

- a. Make-up water analysis
- b. Water system mechanical details
- c. Water system operational details
- d. Environmental restrictions
- e. Review of the fitness for purpose of any existing water treatment equipment
- f. Review of the current Legionella risk assessment and management processes (if any)
- g. Any other information relevant to the design of an appropriate water treatment programme
- **10** See Appendix 1 for further detail on the above points.

Section 2: Water Treatment Programme Design

11 The LCA Member should have a documented procedure to ensure the correct products are selected to achieve the desired outcomes e.g. use of product selection guides. Such guides should identify control parameters and highlight any product limitations which may affect the performance of the programme. Water treatment products must be compatible when dosed in the same system, e.g. oxidising biocides should not be dosed with readily oxidizable biodispersants or inhibitors.

- **12** Water treatment programme design should include (where appropriate):
 - a. Selection of products or control techniques
 - **b.** Consideration of suitability of existing pre-treatment and dosing and control equipment for the proposed treatment programme
 - **c.** Design of the monitoring and testing programme:
 - *i.* Chemical test selection
 - *ii.* Identification of suitable sampling points
 - *iii.* Microbial monitoring regime
 - *iv.* Test methods
 - v. Definition of all control limits and desired outcomes
 - vi. Testing frequency / service schedule
 - **d.** Disinfection and cleaning regime (the delivery of cleaning and disinfection is covered under the LCA Cleaning and Disinfection standard)

Section 3: Agreeing the Scope of Work with the Service User

13 This must include the following:

- a. The premises and/or buildings to be included
- **b.** The identification of the water systems to be treated
- c. Treatment techniques to be used to deliver the desired outcomes
- d. Products and services to be supplied
- e. Monitoring, analysis and inspection programme
- **f.** Identify those tasks in the water treatment programme to be covered by the LCA Member and those which should be provided by the service user
- g. Agreement of lines of communication and reporting
- h. Reporting format and delivery method
- i. Access arrangements and times

Section 4: Preparation

14 LCA Members must ensure that the programme is correctly set up, the role and expectations of both parties is understood and, where appropriate, the service user is given the necessary instruction in the aspects of the programme which they are to implement. It should include (as appropriate):

- a. Documented allocation of responsibilities between the LCA Member and the service user
- **b.** Agreement over lines of communication and reporting
- c. Initial instruction for the service user and identification of training needs
- d. Agreement over success criteria for the programme

15 Prior to site attendance:

- **a.** Ensure LCA Member staff/sub-contractor has the appropriate assessed competence/capability to carry out the task
- **b.** Provide appropriate resources to your staff including:
 - *i.* Task risk assessment
 - *ii.* Suitable method statement/work instruction
 - *iii.* Emergency procedures (e.g. first aid, accident reporting, incident reporting, chemical handling/safety and environmental protection, etc.)
 - *iv.* PPE/RPE and other safety/access equipment that may be required by the site rules or task risk assessment/method statement
 - v. Suitable monitoring, testing and inspection equipment
 - vi. Job reporting system (e.g. a paper or electronic record of the work when completed)

Section 5: Carrying out the Work

- **16** Immediately prior to commencing each service visit, the operatives must:
 - **a.** Complete a pre-work task risk assessment or review and, if necessary, amend the preliminary task risk assessment
 - **b.** Check PPE/RPE and equipment required by pre-work task risk assessment
 - c. Check method statement/work instruction is valid
 - **d.** Ensure monitoring, testing and inspection equipment is suitably calibrated and reagents are in date. See LCA Guidance on Calibration of Water Testing Equipment document (405.21 04-21).

- **17** During the service visit, the operatives must:
 - a. Carry out LCA Member allocated tasks
 - **b.** Complete a detailed report of work outcomes. A copy is to be created for both the site records and the LCA Member's own offsite records. This report may be in duplicate paper or shared electronic format
 - **c.** Bring to the attention of the client any non-conformance with the programme control limits and give recommended corrective actions
 - **d.** Bring to the attention of the client any other areas of concern identified which impact on Legionella risk

Section 6: Verification and Quality Control

- **18** The LCA Member must have procedures and records in place to ensure that:
 - a. All scheduled service visits have been completed (missed visit control)
 - **b.** Required monitoring, analysis and inspection tasks have been completed
 - c. The correct control limits have been employed
 - d. Results have been interpreted correctly
 - e. Appropriate corrective actions have been discussed with the agreed contacts
 - f. Significant non-conformances are recorded and tracked to conclusion
- **19** A representative proportion of output must be monitored to ensure compliance with the above.

D) WHAT YOU NEED TO TELL YOUR CUSTOMER

- 20 It is the responsibility of the dutyholder/responsible person to:
 - **a.** Have a Legionella risk assessment, written scheme of control and schematic diagrams in place, which includes a programme of treatment, monitoring and inspection and to make them available to the LCA Member
 - **b.** Provide sufficient information to enable the LCA Member to design an appropriate treatment programme it is not adequate to request the provision of water treatment services "in accordance with L8"
 - c. Make systems available and ensure safe access for treatment, monitoring and inspection
 - d. Ensure that tasks they are responsible for are completed and documented in the agreed record system
 - e. Participate in the agreed review process
 - **f.** Provide notification and any necessary instruction on known risks and safety requirements in the areas the LCA Member will be working e.g. access to the site asbestos register

Appendix 1 – Information Required for Survey of Different System Types

21 The LCA Member should have a defined process for gathering the required information to design an appropriate treatment programme for the relevant system type, e.g., a survey procedure and structured survey form.

22 The survey/information gathering may include, as appropriate:

Type of system	Survey Requirements <u>May</u> Include:
Hot and cold water systems	 Mechanical and operational aspects of the system, e.g.; a) Calorifiers b) Cold water storage tanks c) System water volume d) Recirculation details e) Sentinel outlets f) Make-up source g) System metallurgy h) Water consumption i) Etc. Chemical properties of the water to be treated, e.g.; a) pH b) Conductivity/TDS c) Hardness d) Chloride e) Sodium f) Temperature g) Alkalinity h) Etc. Environmental restrictions with respect to water treatment Location and suitability of dosing and control equipment and review of the fitness for purpose of any existing treatment equipment Safe handling of chemicals, delivery, storage and application methods Other restrictions on the application of water treatment such as use of water for Dialysis, Neonates, etc.

Type of system	Survey Requirements <u>May</u> Include:
Evaporative cooling system	 Mechanical and operational aspects of the system, e.g. a) Manufacturer b) Volume of system c) Recirculation rates e) Make-up source f) System half-life g) Critical heat exchangers h) System metallurgy i) Water consumption j) Water and heat exchanger temperatures k) Etc. * Chemical and microbiological properties of both the make-up source and system water a) pH b) Conductivity c) Alkalinity d) Sulphate e) Chloride f) Total Hardness g) Calcium Hardness h) Magnesium Hardness i) Iron j) Zinc k) Manganese i) Total Phosphate * Environmental restrictions with respect to chemical treatments, blowdown, etc. Review of historical system data in relation to risk management, e.g., current treatment, logbooks, legionella test certificates Cleaning and disinfection records, and also system operation, e.g., failures due to corrosion, scale deposition, process contamination, etc. Safe handling of chemicals, delivery, storage and application methods

Type of system	Survey Requirements <u>May</u> Include:
Other risk systems	 Mechanical and operational aspects of the system, e.g. a) Manufacturer b) Volume of system c) Recirculation rates d) Make-up source e) System half-life f) Critical heat exchangers g) System metallurgy h) Process information i.e., will there be any compatibility issues with the treatment proposed i) Water consumption j) Water and heat exchanger temperatures k) Etc. Relevant chemical and microbiological properties of both the make-up source and system water Environmental restrictions with respect to chemical treatments, blowdown, etc. Review of historical maintenance records Review of historical system data in relation to risk management, e.g., current treatment, logbooks, Legionella analytical test certificate Cleaning and disinfection records, and also system operation, e.g., failures due to corrosion, scale deposition, process contamination, etc. Location and suitability of pre-treatment plant, dosing and control equipment and review of the fitness for purpose of any existing treatment equipment Safe handling of chemicals, delivery, storage and application methods

FOR AND ON BEHALF OF THE LEGIONELLA CONTROL ASSOCIATION