

Guidelines issued by the
Director of Public Health
under the *Public Health Act 1997*

Guidelines for the Control of Legionella in Regulated Systems

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I. INTRODUCTION

- I.1 These Guidelines are issued by the Director of Public Health under the *Public Health Act 1997*. It is a legal requirement to comply with the Guidelines. Failure to do so is a breach of the *Act* and may result in fines of up to 100 penalty units.
- I.2 The *Act* provides that the *Director* may, by *public notice*, require specified classes of *regulated systems* to be *registered* under the *Act*. The *Director* has issued a *public notice* requiring *cooling towers* and *warm-water systems* (hereafter referred to as *registered systems*) to be registered. The purpose of the *registration* is to improve the maintenance and operation of *registered systems* to minimise opportunities for the spread of *Legionella* and to assist in tracing possible environmental sources of a *Legionella* infection.
- I.3 The Guidelines act as the ‘relevant guidelines’ for the purposes of Part 5, Division 5 of the *Act*. The Guidelines apply to the *owner* of premises where *registered systems* are installed and to persons engaged to operate and maintain such systems.
- I.4 The purpose of the Guidelines is to provide specific requirements about the maintenance and operation of *registered systems* to reduce public health risks relating to *Legionella*.
- I.5 Although the Guidelines have been prepared by the Department of Health and Human Services, local *councils* carry out the *registration* of *regulated systems*. Applications for *registration* and queries about the *registration* process should be made to the appropriate *council*.

2. DEFINITIONS

- 2.1 Words appearing in italics in these Guidelines have the same meaning as in the *Act* or as defined below:
- “Act”** means the *Public Health Act 1997*;
- “accredited laboratory”** means a National Association of Testing Authorities’ accredited laboratory or a laboratory approved in writing by the *Director*;
- “council”** means a council within the meaning of the *Local Government Act 1993*;
- “Director”** means the Director of Public Health appointed under the *Act*;
- “registered system”** means a *cooling tower* or a *warm-water system*;
- “water systems professional”** means a person who is approved by the *Director* to perform a risk assessment on a *regulated system*, or a NP3 tertiary qualified engineer.

3. RELATIONSHIP BETWEEN THE GUIDELINES AND BUILDING LEGISLATION

- 3.1 The *Building Regulations 2004* and the Building Code of Australia require new registered systems associated with ventilation systems in buildings to comply with AS/NZS 3666.1. These Guidelines do not affect this requirement. Any queries about building legislation requirements should be directed to the relevant council.

4. AUSTRALIAN STANDARDS

- 4.1 These Guidelines incorporate elements of the following Australian/New Zealand Standards relevant to Legionella control:
- 4.1.1 AS/NZS HB32 – Control of microbial growth in air-handling and water systems of buildings.
 - 4.1.2 AS/NZS 3666.1 - Air Handling and Water Systems of Buildings - Microbial Control, Part 1: Design Installation and Commissioning.
 - 4.1.3 AS/NZS 3666.2 - Air Handling and Water Systems of Buildings - Microbial Control, Part 2: Operation and Maintenance. The requirements of this Standard include monthly inspection, and six monthly cleaning and maintenance records. These maintenance requirements are very basic and in practice are usually supplemented by regulatory guidelines.
 - 4.1.4 AS/NZS 3666.3 - Air Handling and Water Systems of Buildings - Microbial Control, Part 3: Performance Based Maintenance of Cooling Water Systems.
 - 4.1.5 AS/NZS 4276.3.1 – Water Microbiology – Heterotrophic colony count methods – Pour plate method using yeast extract agar.
 - 4.1.6 AS/NZS 4276.3.2 – Water Microbiology – Heterotrophic colony count methods – Plate count of water containing biocides.
 - 4.1.7 AS/NZS 4032-1998 – Thermostatic Mixing Valves – Materials, Design and Performance Requirements.
- 4.2 Where the provisions of these Guidelines and AS/NZS 3666.2 or AS/NZS 3666.3 are in conflict, the provisions of these Guidelines prevail.

5. REQUIREMENTS FOR REGISTERED SYSTEMS

- 5.1 The owner of a *registered system* that was commissioned prior to the issue of these Guidelines must ensure that the *registered system* complies with AS/NZS 3666.1.
- 5.2 The owner of a *registered system* must ensure that the *registered system* is operated and maintained in accordance with AS/NZS 3666.2.
- 5.3 The owner of a *registered system* must ensure that either:
- 5.3.1 a process designed to control microbial growth is developed for the *registered system* and that process is:
 - (a) operational at all times; and
 - (b) annually certified by a *water systems professional* as being an effective process of disinfection for the *registered system*; and
 - (c) sufficiently effective that the *registered system* does not pose a risk to public health; or
 - 5.3.2 the *registered system* is operated in accordance with the requirements of AS/NZS 3666.3.
- 5.4 The owner of a *warm water system* that uses thermostatic mixing devices must ensure that the *warm water system* is maintained in accordance with the requirements of AS/NZS 4032 - 1998.

6. MONITORING

- 6.1 A person operating a *cooling tower* must ensure that:
- 6.1.1 each month, a representative sample of water from the *cooling tower* is taken in accordance with Appendix A, AS/NZS 3666.3 while the *cooling tower* is in use and that sample is tested in an *accredited laboratory* for Heterotrophic Colony Count; and
 - 6.1.2 every six months, a representative sample of water from the *cooling tower* is taken in accordance with Appendix A, AS/NZS 3666.3 while the *cooling tower* is in use and that sample is tested in an *accredited laboratory* for the presence of Legionella.

- 6.2 A person operating a *warm water system* must ensure that:
- 6.2.1 every six months, and at such other times as directed by an *authorised officer*, a representative sample of water is taken from the *warm water system* and tested in an *accredited laboratory* for the presence of *Legionella*.
- 6.3 Note - the *Director* requires laboratories and persons initiating tests to notify the *Director* of certain test results in accordance with guidelines relating to the notification of diseases, organisms and contaminants. These guidelines can be found at www.dhhs.tas.gov.au/peh/public_health_guidelines

7. ACTION BASED ON RESULTS OF MONITORING OF A COOLING TOWER

- 7.1 If a test result from a representative sample of water from a *cooling tower* indicates a Heterotrophic Colony Count greater than or equal to 100,000 colony forming units per millilitre, the *owner* of the *cooling tower* must ensure that a control strategy is immediately initiated in accordance with Table 3.2 and Figure 3.2 of AS/NZS 3666.3.
- 7.2 If a test result from a representative sample of water from a *cooling tower* indicates the presence of *Legionella* at a level greater than or equal to 10 colony forming units per millilitre, the *owner* of the *cooling tower* must ensure that a control strategy is immediately initiated in accordance with Table 3.1 and the flow chart in Figure 3.1 of AS/NZS 3666.3.

8. ACTION BASED ON RESULTS OF MONITORING OF A WARM WATER SYSTEM

- 8.1 If a test result from a representative sample of water from a *warm water system* indicates the presence of *Legionella*, then:
- 8.1.1 use of the *warm water system* must immediately cease; and
- 8.1.2 heat decontamination or chlorine decontamination procedures as set out below must be immediately implemented (note that other laws require appropriate safeguards be put in place to prevent accidental scalding); and
- 8.1.3 upon completion of one or both decontamination procedures set out below, use of the *warm water system* may resume.

8.2 Heat decontamination

8.2.1 Heat decontamination of the *warm water system* is to be implemented by:

- (a) raising the water temperature to 70 degrees Celsius for a period of one hour; and
- (b) progressively flushing the hot water outlets around the *warm water system* at a minimum temperature of 70 degrees Celsius for a period of 2 minutes.

8.3 Chlorine decontamination

8.3.1 Chlorine decontamination of the *warm water system* is to be implemented as follows:

- (a) isolate the heat source;
- (b) remove any sludge from the bottom of warm water storage system;
- (c) ensure that an air break is incorporated between the water supply main and the *warm water system* to prevent contamination of the water distribution system;
- (d) add sodium hypochlorite solution until a free chlorine residual of 10 milligrams per litre is achieved in the warm water storage system, whilst maintaining the pH of the water between 7.0 and 7.6;
- (e) ensure thorough mixing and circulation throughout the *warm water system*;
- (f) flush each outlet;
- (g) check to ensure that the free chlorine residual in the water is not less than 7 milligrams per litre at the outlet at the furthest point from the warm water storage system;
- (h) allow the water to stand for one hour and then test the free chlorine residual at the furthest outlet;
- (i) repeat the above procedures if the test at (h) reveals that the free chlorine residual is less than 2 milligrams per litre;
- (j) when the free chlorine residual reaches 2 milligrams per litre or greater, drain the warm water storage system then refill and recommission; and
- (k) when the *warm water system* has been recommissioned, record the details of actions taken in a maintenance book.

9. APPLICATIONS TO REGISTER

- 9.1 Pursuant to sections 114(2)(a) and 121(2)(a) of the Act, an application to register or renew the registration of a registered system is taken to be in the approved form if it contains the following information:
- 9.1.1 tabled results of all registered system water testing and the laboratory details for each test; and
 - 9.1.2 specifications of the maintenance program for the registered system; and
 - 9.1.3 a statement from a water systems professional that a process which effectively disinfects the registered system is in operation; and
 - 9.1.4 a statement from the person responsible for the maintenance program that the maintenance of the registered system has been carried out as required by these Guidelines; and
 - 9.1.5 where applicable, a copy of the risk assessment, as specified in Section 2.3 of AS/NZS 3666.3, and a statement from a water systems professional that the maintenance program is suitable for the registered system.
- 9.2 Failure to provide this information may result in the application being refused.

10. MAINTENANCE OF RECORDS

- 10.1 The owner of any premises where a registered system is installed must, in relation to that system, keep a record of maintenance schedules and risk assessment documentation as noted at clause 9 of these Guidelines.
- 10.2 These records must be made available to an authorised officer upon request.

II. COUNCIL OBLIGATIONS

- 11.1 Pursuant to section 27(1)(c) of the *Act*, the *Director* hereby determines that a *council*, within its municipal area, must carry out the following functions for the purpose of the *Act*:
- (a) Identify the location and *owner* of all operational *registered systems*; and
 - (b) Advise each *owner* referred to above that pursuant to the *public notice* issued by the *Director*, that *registered system* is to be *registered* with the *council*; and
 - (c) Maintain a register of *registered systems* that contains such details of *registered systems* operating in its municipal area as detailed at clause 11.2 below.
- 11.2 Pursuant to section 143(2) of the *Act*, the *Director* hereby requires a council to provide to the *Director*, by 30 September each year, the following information in relation to each *registered system* operating in the *council's* municipal area:
- (a) location of the *registered system* (including GPS coordinates where possible); and
 - (b) name, address and contact details of the *owner* of the *registered system*; and
 - (c) brief description of the type of *registered system*; and
 - (d) name of any person/company engaged to operate and/or maintain the *registered system*; and
 - (e) when the *registered system* was *registered* with the *council*.



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