

Explanatory Memorandum

for the

**ACT Cooling Towers and
Warm Water Storage Systems**

Code of Practice 2000

declared under the Public Health Act 1997

Introduction (Section 1)

Section 1 details the intended framework of the Code of Practice and its geographical area of application. This section also specifies that the Code has been developed with a view towards risk minimisation.

Scope (Section 2)

Section 2 sets out the minimum requirements for cooling towers and warm water storage systems that fall under the areas in section 4 'Application'. This section also states that the code is determined under section 133 of the *Public Health Act 1997*.

Objective (Section 3)

Section 3 sets out the objectives of the Code of Practice in that it is designed to avoid an outbreak of the disease Legionellosis.

Application (Section 4)

Section 4 provides that the Code of Practice applies to all non-domestic buildings that have cooling towers, evaporative condensers or warm water storage systems of greater than 500 litres capacity. This section ensures that the code applies only to buildings that have cooling towers or warm water storage systems as part of their plant.

However, the Code of Practice does not apply to hot water systems, warm water storage systems less than 500 litres capacity, spa pools and hydrotherapy pools, and evaporative air coolers.

Definitions (Section 5)

Section 5 defines certain terms and phrases commonly used in the Code of Practice. The terms and phrases defined in the Definitions are:

Act

Alkalinity

AS/NZS 3666

Authorised Medical Officer

Authorised Officer

cfu/mL

Chief Health Officer

Code

Conductivity

Cooling Tower

Department

DPD Test Kit

Evaporative Air Coolers

Evaporative Condensers

Extraneous Matter

Good Working Order

High Risk Event

High Risk Sites

Hot Water Systems

mg/L
pH
Practising Engineer
Public Health Officer
Registered
Registered Person
Registration Certificate
Significant Modification
Standard
TDS
Warm Water Storage System

Referenced Documents (Section 6)

Section 6 lists the documents used as reference material for the development of the Code of Practice. The second paragraph details further references that may be useful when developing protocols for the maintenance of cooling towers and warm water storage systems.

Adoption of AS/NZS 3666 (Section 7)

Section 7 provides that the code adopts AS/NZS 3666 and that it forms part of the Code of Practice.

This section also ensures that if there is a conflict between this code of practice and AS/NZS 3666, then the provisions in this code of practice prevail.

This section also details that where an issue has not been addressed by the Code of Practice but is addressed in AS/NZS 3666, the Code of Practice requires compliance to that issue as detailed in AS/NZS 3666.

Additional Requirements (Section 8)

Section 8 details requirements that are in addition to those detailed in AS/NZS 3666 for both cooling towers and warm water storage systems.

Cooling Towers—General Requirements (Section 8.1)

Section 8.1 states that all cooling towers, irrespective of risk rating, are to comply with all the requirements in section 8.1 and any issue that is not addressed by the Code of Practice but detailed in AS/NZS 3666.

Operating Parameters (Section 8.1.1)

Section 8.1.1 specifies that all cooling towers are to be operated in accordance with the practicing engineer's risk assessment undertaken under section 8.1.10. This section ensures that cooling towers are operated in such a manner as to minimise the risk to public health.

Water Quality (Section 8.1.2)

Section 8.1.2 specifies the sampling procedures for water from cooling towers, maximum number of colony forming units of *Legionella* bacteria and heterotrophic microorganisms

that cooling tower water may contain before a notification of a high risk event (see section 9) needs to be instituted.

This section also provides that the analysis must be undertaken by a NATA accredited laboratory and specifies the methods of analysis for *Legionella* bacteria and heterotrophic microorganisms. This section ensures that all results are comparable between laboratories.

The section further details that where a microbiological test result is returned that breaches the requirements, the registered person of the cooling tower must instigate the appropriate control strategy detailed in Appendix A or B of the Code.

Drift Eliminators (Section 8.1.3)

Section 8.1.3 provides that all cooling towers, whether new or existing, have drift eliminators installed that have a maximum drift loss on 0.02 per cent of the maximum design water circulation rate. This section ensures that the drift from a cooling tower is kept to a minimum.

This section also ensures that any drift eliminators installed into cooling towers are certified to comply with the 0.02 per cent drift loss requirement by a practising engineer.

Automatic Bleed-off (Section 8.1.4)

Section 8.1.4 provides that all cooling towers, whether new or existing, have automatic bleed-off equipment installed to limit the build-up of dissolved and non-dissolved solids.

This section also ensures that any automatic bleed-off equipment installed into cooling towers is certified to comply with the requirements of the Code by a practising engineer.

Automatic Dosing (Section 8.1.5)

Section 8.1.5 provides that all cooling towers, whether new or existing, have automatic dosing equipment installed to control microbial growth, corrosion, scaling and fouling. The section also requires that when automatic dosing equipment is installed, it is installed with a 'lock-out' to prevent the chemicals being injected while automatic bleed-off is operating. The paragraph also specifies that dosing equipment that drip feed chemicals for the control of microbial growth, corrosion, scaling and fouling are not considered automatic.

This section also ensures that any automatic dosing equipment installed into cooling towers is certified to comply with the requirement by a practising engineer.

Good Working Order (Section 8.1.6)

Section 8.1.6 provides that all cooling towers are to be kept in good working order taking into account the cooling tower's compliance with the manufacturer's operating specifications and its risk to public health. This section ensures that a cooling tower will be maintained to the cooling tower manufacturer's recommendations.

Shut Down (Section 8.1.7)

Section 8.1.7 provides that all cooling towers must have a written shut down procedure displayed near to the cooling tower's location and that the procedure is protected from weathering. This section ensures that in the event of an emergency, the cooling tower can be shut down by any reasonable person.

Stand-by Systems (Section 8.1.8)

Section 8.1.8 provides that all stand-by cooling towers are to be maintained to the level required by this code.

Risk Assessment (Section 8.1.9)

Section 8.1.9 provides that a practising engineer undertake a risk assessment of the cooling tower every five years or as directed by an authorised officer in accordance with Section 2 of AS/NZS 3666.3. This section ensures that cooling towers are operated and maintained at such a level so as to ensure that they are operating efficiently and have minimal impact upon public health.

The section also specifies times where the risk assessment needs to be reviewed and the factors that must be taken into account when undertaking the risk assessment.

Cooling Towers at High Risk Sites (Section 8.2)

Section 8.2 details the extra requirements for cooling towers at high risk sites that are in addition to those detailed in Section 8.1.

Decontamination (Section 8.2.1)

Section 8.2.1 provides that all cooling towers at high risk sites must be fully decontaminated at three monthly intervals in accordance with Appendix C of AS/NZS 3666.3. This section ensures that cooling towers at high risk sites have minimal levels of microbial contaminants at all times.

Extraneous Matter (Section 8.2.2)

Section 8.2.2 provides that all extraneous matter, whether of plant, animal or inorganic origin that may adversely affect the operation of the cooling tower, is prevented, as far as practicable, from entering cooling tower's at high risk sites. This section ensures that the cooling tower is not adversely affected by matter entering it, thus, increasing the risk of an outbreak of Legionellosis.

Warm Water Storage Systems (Section 8.3)

Section 8.3 specifies the maximum number of Legionella bacteria per millilitre that a warm water system may contain before a notification of a high risk event needs to be instituted.

Water Quality (8.3.1)

Section 8.3.1 provides that the water in warm water storage systems has no more than 10 *Legionella* bacteria per millilitre of water. It also ensures that water sampling and analysis is carried out by a NATA registered laboratory using a specific method, or an equivalent peer reviewed method.

The section further details that where a *Legionella* test result is returned that breaches the requirement, the registered owner or manager of the warm water storage system must instigate cleaning and disinfection as per Appendix C to the Code of Practice.

Cleaning and Disinfection (8.3.2)

Section 8.3.2 provides that warm water storage systems must be cleaned and disinfected every three months as per the requirements of Appendix C to the Code of Practice. This section ensures that warm water storage systems have minimal microbial contamination.

Notification of High Risk Events (Section 9)

Section 9 provides that the registered person of a cooling tower or warm water storage system shall notify the Department within 24 hours after receiving a result greater than 100 *Legionella* bacteria per millilitre, or after receiving a result of greater than 5,000,000 cfu/mL of heterotrophic microorganisms, or other high risk event. This section ensures that the Department is notified of a high risk event so that it may take any necessary action in order to prevent an outbreak of disease.

Records (Section 10)

Section 10 specifies the records that must be kept and submitted to the Department.

Material Safety Data Sheets (Section 10.1)

Section 10.1 provides that for all chemicals in use on the premises, up to date material safety data sheets are to be kept close to where the chemicals are stored.

General Reporting Requirements (Section 10.2)

Section 10.2 provides that both maintenance records and microbial testing records are kept at a place agreed between the registered person and an authorised officer and are available for inspection by an authorised officer. The section also specifies that the records must be kept for a minimum of two years.

Section 10.2 further provides that the maintenance records and the microbial testing records may be combined into one report provided that all the required information is on the report, except any overlapping information (eg. name and address of the owner/manager of the building).

Maintenance Records (Section 10.3)

Section 10.3 provides the minimum requirements for maintenance records that must be kept by the registered person of the cooling tower or warm water storage system.

Microbial Testing Records (Section 10.4)

Section 10.4 provides the minimum requirements for microbial testing records that must be kept by the registered person of the cooling tower or warm water storage system.

Submission of Records (Section 10.5)

Section 10.5 provides that all maintenance and bacterial testing records shall be submitted to the Department with 14 days of the end of each quarter of the calendar year.

Administrative (Section 11)

Section 11 specifies some administrative requirements for cooling towers and warm water storage systems.

Certification (Section 11.1)

Section 10.1 provides that all new cooling towers or warm water storage systems shall be certified to comply with this Code of Practice by a practicing engineer and that a copy of the certification be submitted to the Department.

Further, section 10.1 provides that where a significant modification to a cooling tower or warm water storage system takes place, a practicing engineer shall certify its compliance to the Code of Practice and that a copy of the certification be submitted to the Department.

Notification of Changes (Section 10.2)

Section 10.2 provides that the registered person shall within 14 days notify the Department of any change in information specified on the licence. This section ensures that the Department is kept up to date with information pertinent to the registration of the cooling tower or warm water storage system.

Control Strategies for the Control of Legionella (Appendix A)

Appendix A details control strategies for dealing with a *Legionella* test result of 10 or more per millilitre of cooling tower water.

Control Strategies for the Presence of Heterotrophic Microorganisms (Appendix B)

Appendix B details the control strategies for dealing with a heterotrophic colony count of 100,000 cfu/mL or greater in cooling tower water.

Cleaning and Disinfection of Warm Water Storage Systems (Appendix C)

Appendix C details cleaning and disinfection procedures for warm water storage systems.

AUSTRALIAN CAPITAL TERRITORY

Public Health Act 1997

INSTRUMENT NO. 288 OF 2000

Determination of a Cooling Towers and Warm Water Systems Code of Practice

Explanatory Statement

Section 133(1) of the *Public Health Act 1997* (the Act) provides that the Minister may, by instrument, determine Codes of Practice setting minimum standards or guidelines for the purposes of the Act.

Section 133(2) of the Act provides that the Code of Practice may apply, adopt, incorporate any matter contained in the instrument or other writing as in force from time to time.

This instrument declares the *ACT Cooling Towers and Warm Water Storage Systems Code of Practice 2000* to be a Code of Practice for the purposes of the Act and commences on the First day of September 2000.

The *ACT Cooling Towers and Warm Water Storage Systems Code of Practice 2000* adopts, by reference, *AS/NZS 3666—Air-handling and water systems of buildings – Microbial control* and adds requirements or clarifies certain requirements that exist in AS/NZS 3666. In the event that there is an inconsistency between the Code and AS/NZS 3666, the Code prevails to the extent of that inconsistency.

Any Code of Practice determined under Section 133 is enforceable through the Act. Legal proceedings may follow for failure to comply with Codes of Practice.

A determination under Section 133 of the Act is a disallowable instrument for the purposes of Section 10 of the *Subordinate Laws Act 1989*.