

National Summary of Cooling Tower Legislation

The legislation governing the operation of cooling towers is state/territory-based and as a result, the legislative requirements vary between states and territories. Typically the legislation relating to cooling towers forms part of Public Health related legislation, due to the potential for the operation of cooling towers to represent a public health risk in the event of a Legionella outbreak.

The key legislative requirements for the states/territories are provided below.

Victorian Requirements

The Victorian legislative requirements for cooling tower systems are defined within the *Public Health and Wellbeing Act 2008* (the Act) and the *Public Health and Wellbeing Regulations 2009* (the Regulations).

In accordance with the Act, cooling tower systems must be registered with the Department of Health and the owner of the site is responsible for satisfying the legislative requirements. Cooling tower systems may be registered for a period of up to three years.

A risk management plan (RMP) must be developed for each cooling tower system which addresses the five following prescribed risks:

- Stagnant water;
- Nutrient growth;
- Poor water quality;
- System deficiencies; and
- Location and access to the tower(s).

RMPs must also provide details of the steps that are being undertaken to comply with the maintenance, service and testing requirements specified in the RMP. This includes the corrective actions taken to

address adverse microbial test results such as the detection of Legionella or an elevated Heterotrophic Colony Count (HCC).

The RMP must be reviewed at least annually and audited by a Department of Health accredited cooling tower risk management plan auditor in order to comply with Victorian legislation.



The Victorian legislation requires cooling tower systems to be:

- Continually treated with biocides, anticorrosion agents and a bio-dispersant;
- Serviced at least once a month;
- Recirculating water sampled and analysed at least once a month for the heterotrophic colony count (HCC);
- Recirculating water sampled and analysed at least once every three months for Legionella.

Should elevated HCC (>200,000 colony forming units (cfu)/mL) or Legionella (>10 cfu/mL) concentrations be detected, the Regulations provide guidance on the appropriate course of corrective management.

Following three consecutive detection of Legionella, there is a mandatory requirement to notify the Department of Health.

New South Wales Requirements

In New South Wales, the *Public Health Act 1991* and the sub-ordinate *Public Health (Microbial Control) Regulation 2000* govern the operation of cooling tower systems. NSW Health published the *NSW Code of Practice for the Control of Legionnaires' Disease, 2nd Edition, June 2004*, which provides more detail regarding the legislative requirements for the operation of cooling tower systems.

Under the Code of Practice, cooling tower systems must be registered with the local council. The occupier of the site is responsible for ensuring the registration is completed.

The New South Wales regulations hold the occupier (who may or may not be the site owner) responsible for the registration, installation, operation and maintenance of any cooling tower systems situated on the premises that they control.

A microbial growth control process must be in operation at all times, which is independent of the water-cooling system. This process must be annually certified by a competent person as being an effective process of disinfection under the range of conditions that could ordinarily be expected.

Should detectable Legionella or elevated HCC concentrations (>100,000 cfu/mL) be identified by water sampling, a competent person must undertake remedial action.

There are currently no mandatory reporting requirements in NSW when microbial thresholds are exceeded.

Australian Capital Territory Requirements

The ACT legislative requirements for cooling tower systems are defined within *ACT Health, Cooling Towers, Evaporative Condensers and Warm Water Storage Systems (Specialised Systems), Code of Practice 2005*. This Code of Practice is enforceable under section 20 of the *Public Health Act 1997* and adopts *Australian and New Zealand Standard AS/NZS3666, Air Handling and Water Systems of Buildings – Microbial Control*.

Under the legislation, a registered person is required to ensure the system is registered, operated and maintained effectively. As part

of the registration of new cooling towers, or following a significant modification to cooling towers, a practising engineer must be engaged to certify that the cooling tower complies with the requirements of the Code of Practice, with copy of the certification to be issued to ACT Health. It is also a requirement of the registered person to engage a practising engineer to undertake a risk assessment every five years, with the risk assessment to be submitted to ACT Health.

The maintenance requirements include a water treatment program which is automatically regulated, cleaning of the system every three months and monthly testing for Legionella and HCC.

The ACT Code of Practice lists the control strategies required based on the Legionella test results. The extent of remedial action required is dependent on the reported concentrations and there is a requirement to formally notify ACT Health within 24 hours of receiving a water sampling result of greater than or equal to 1,000 cfu/mL for Legionella or 5,000,000 cfu/mL for HCC, or another high risk event (i.e. cooling tower has no biocide).

Queensland Requirements

The Queensland legislative requirements for cooling tower systems are defined within the *Queensland Workplace Health and Safety Act, 1995*. The *Guide to Legionella Control in Cooling Water Systems, Including Cooling Towers (2008)* assists owners or controllers of cooling tower systems comply with their obligations under the Act.

Under these guidelines, the obligation to manage and maintain a cooling tower system resides with the owner of the plant, unless a contractual agreement is in place which gives control to another person. The owner of the plant is responsible for ensuring that cooling towers are registered with the Queensland Department of Employment and Industrial Relations.

The guidelines recommend that a risk management plan be developed for each cooling tower system which addresses the same critical risk factors identified by the

Victorian legislation. The RMP should also include:

- Key performance indicators and targets for the maintenance of the cooling water system;
- Maintenance, service, inspection and cleaning requirements (including frequency);
- Procedures for reporting corrective actions; and
- How the operation of the chiller(s) impact upon the cooling tower risks.

It is the responsibility of the owner or person in control of the cooling tower system to ensure that a competent person is engaged to carry out the maintenance, water treatment, inspection, cleaning and disinfection of the cooling tower system. The guidelines provide guidance on remedial strategies in the event of elevated microbial test results.

There are no mandatory reporting requirements for Queensland when microbial thresholds are exceeded.

South Australian Requirements

The South Australian legislative requirements for cooling tower systems are defined within the *Public and Environmental Health (Legionella) Regulations 2008* and supported by the *Guidelines for the Control of Legionella in Manufactured Water Systems in South Australia, 2008*. The Regulations and Guidelines are support documents to the *Public and Environmental Health Act 1987*.

In South Australia, cooling towers must be registered with the local council. The local council (or other suitable third party) must complete annual inspections of the towers to ensure they comply with the legislative requirements.

The cooling towers are to be inspected monthly as part of a general maintenance routine, and cleaned at least once every six months.

Cooling towers systems must be fitted with an automatic biocide dosing device to prevent microbial growth. The effectiveness of the

device must be assessed at least once every twelve months. Drift eliminators must also be fitted to each cooling tower, unless otherwise determined by the Minister.

There is a legislative requirement to formally notify local council within 24 hours if a Legionella result greater than 1,000 cfu/mL is reported in a cooling tower system. It is also mandatory to complete an emergency decontamination of the tower, in this event.

Operation and maintenance manuals and records should be retained onsite and available to relevant personnel.



Western Australian Requirements

The Western Australian requirements for cooling tower systems are defined within the *Code of Practice, Prevention and Control of Legionnaires' Disease, 2010*. The Code of Practice is issued under the provisions of the *Occupational Safety and Health Act 1984*.

The Code of Practice states that cooling tower systems should include an automatic controlled system for the management of corrosion, fouling, scaling and microbial growth. The cooling towers should be inspected monthly and cleaned at least every six months. Microbial monitoring including Legionella and HCC testing should be regularly undertaken (i.e. quarterly for Legionella and monthly for HCC).

Operating and maintenance manuals and maintenance records should be available and should include:

- A risk assessment and associated system specific management plan.
- Manufacturers' maintenance recommendations.
- Water treatment and microbiological reports and records.
- Roles and responsibilities associated with the system operation.
- Evidence of awareness training for individuals responsible for management and maintenance of the system.

There are no mandatory reporting requirements in Western Australia when microbial thresholds are exceeded.



Tasmanian Requirements

The Tasmanian requirements for cooling tower systems are defined within the *Guidelines for Legionella 2001*, which are enforceable under the *Public Health Act 1997*. The *Building Regulations 1994* require that new cooling towers associated with ventilation systems in buildings comply with AS/NZS3666.1. The Guidelines also require that relocated cooling tower and new cooling towers not associated with building ventilation system comply with AS/NZS3666.1.

The Guidelines require the owner of a cooling tower to ensure it is operated and maintained in accordance with AS/NZS3666.2. The owner is also responsible for ensuring that a process is in place to control microbial growth and that the process is:

- Operational at all times;
- Annually certified by a water treatment expert as being an effective process of disinfection; and
- Sufficiently effective to ensure that no water sample records elevated microbial test results (100,000 cfu/mL for HCC and 10 cfu/mL for Legionella).

Where results above these thresholds are recorded, the analytical laboratory is required to notify the Director of Public Health.

The person operating a cooling tower must ensure that water samples are collected monthly and analysed for HCC, with samples collected at least every six months to be analysed for Legionella.

Cooling tower systems must be registered with local council before commissioning, with this registration renewed annually. As part of the registration process, a risk assessment must be conducted by an engineer and supplied to council. It is also necessary to provide the following:

- Details of the maintenance program including disinfection and water treatment;
- A statement from a water treatment expert that a process which effectively disinfected the cooling tower is in operation; and
- Copies of the previous 12 months of microbial testing results, including remedial actions.

Northern Territory Requirements

The Northern Territory does not currently have specific legislation that relates to the operation and maintenance of cooling towers. However, NT WorkSafe makes reference to AS/NZS3666 for guidance on the operation and maintenance of cooling tower systems.

There are no mandatory reporting requirements in the Northern Territory when microbial thresholds are exceeded.

Should you wish to discuss any aspect of the cooling tower legislation, please contact Richard O'Connor or Cameron Hunter on (03) 9508 0100.