

## **Appendix 1**

### **Regulatory approaches by Australian States and Territories to the prevention of legionellosis**

The primary reference document used to facilitate control measures to minimise or prevent health hazards associated with air and water systems in buildings throughout Australia is the Australian/New Zealand Standard AS/NZS 3666, “Air-handling and water systems of buildings - Microbial control”. The Standard has three parts:

Part 1: Design, installation and commissioning (AS/NZS 3666.1:1995);

Part 2: Operation and maintenance (AS/NZS 3666.2:1995); and

Part 3: Performance-based maintenance of cooling water systems (AS/NZS 3666.3:2000)

Parts 1 and 2 are currently under review.

The control measures in place throughout Australia have legislative backing, although the means of enactment varies from State to State. The details of these measures are summarised in the following tables:

Table 1: Legislation, guidelines and responsible authorities;

Table 2: Registration, approvals and licensing;

Table 3: Maintenance and testing requirements for cooling water systems; and

Table 4: Maintenance and testing requirements for warm water systems.

**TABLE 1. LEGISLATION, GUIDELINES AND RESPONSIBLE AUTHORITIES**

<b>Jurisdiction</b>	<b>Acts</b>	<b>Regulations</b>	<b>Standards, codes or guidelines</b>	<b>Responsible State or Territory agency</b>	<b>Enforcement agencies</b>
Queensland	<i>Workplace Health &amp; Safety Act 1995</i>	<i>Workplace Health &amp; Safety Regulations (1997)</i>	<i>Plant Advisory Standard Supplement No.2 (2000) Legionella Control in Airconditioning Units &amp; Cooling Towers</i>	<i>Department of Industrial Relations</i>	<i>DIR-Division of Workplace Health &amp; Safety</i>
New South Wales	<i>Public Health Act 1991</i>	<i>Public Health (Microbial Control) Regulation 2000</i>	<i>Code of Practice for the Control of Legionnaires' Disease (under review)</i> <i>Code of Practice Thermostatic mixing valves in Health Care Buildings (under review)</i> <i>AS/NZS 3666 parts 1,2 &amp; 3</i>	<i>NSW Health Department and Local government</i>	<i>NSW Health Department and Local government</i>
Victoria	<i>Health Act 1958</i>	<i>Health (Legionella) Regulations 2001</i>	<i>Guidelines for the control of Legionnaires' disease</i>	<i>Department of Human Services</i>	<i>Department of Human Services</i>
	<i>Building Act 1993, as amended by the Building (Legionella) Act 2000</i>	<i>Building Regulations 1994</i>	<i>Building Code of Aust - F4.5 &amp; 11.2 and AS/NZS 3666</i>	<i>Building Control Commission</i>	<i>Authorised officers</i>
		<i>Building (Legionella Risk Management) Regulations 2001</i>	<i>A guide for developing Risk Management Plans for Cooling Tower Systems</i> <i>Managing the Risk of Legionnaires' Disease: Supplementary Notes for Hospitals</i>	<i>Department of Human Services</i>	<i>Department of Human Services</i>

**TABLE 1. LEGISLATION, GUIDELINES AND RESPONSIBLE AUTHORITIES (CONTINUED)**

<b>Jurisdiction</b>	<b>Acts</b>	<b>Regulations</b>	<b>Standards, codes or guidelines</b>	<b>Responsible State or Territory agency</b>	<b>Enforcement agencies</b>
Victoria (continued)	<i>Building Act 1993, as amended by the Building (Legionella) Act 2000 (continued)</i>	<i>Building (Cooling Towers Register) Regulations 2001</i>  <i>Plumbing (Cooling Towers) Regulations 2001</i>	<i>Guide to Registering a Cooling Tower System</i>  <i>AS/NZS 3666 (Mechanical services work only)</i>  <i>A Code of Good Practice for the Servicing, Maintenance &amp; Re-commissioning of Mechanical Services Plant &amp; Equipment</i>  <i>Technical Solutions - 6: Hot water plumbing</i>  <i>Technical Solutions – 7: Mechanical Services</i>	<i>Building Control Commission</i>  <i>Plumbing Industry Commission</i>	<i>Department of Human Services</i>  <i>Plumbing Industry Commission</i>
Tasmania	<i>Public Health Act (1997)</i>		<i>Guidelines for Legionella (2001)</i>	<i>Department of Health and Human Services</i>	<i>Department of Health and Human Services</i>
South Australia	<i>Public and Environmental Health Act (1987)</i>	<i>General provisions of Act.</i>  <i>Specific Regulations proposed</i>	<i>AS/NZS 3666 and HB-32 as base reference documents.</i>  <i>AS/NZS 3500.4.2 by reference.</i>  <i>Proposed “Standard for the Control of Legionella in Manufactured Water System in South Australia”</i>	<i>Department of Human Services (DHS)</i>	<i>Local Government and DHS in unincorporated areas.</i>

**TABLE 1. LEGISLATION, GUIDELINES AND RESPONSIBLE AUTHORITIES (CONTINUED)**

<b>Jurisdiction</b>	<b>Acts</b>	<b>Regulations</b>	<b>Standards, codes or guidelines</b>	<b>Responsible State or Territory agency</b>	<b>Enforcement agencies</b>
South Australia (continued)	<i>Development Act (1993)</i>	<i>Building Code of Australia</i>	<i>AS/NZS 3500.4.2</i>	<i>Local Government Department for Transport, Urban Planning and the Arts (DeTUPA)</i>	<i>Local Government, (DeTUPA in unincorporated areas).</i>
Western Australia	<i>Health Act 1911</i>	<i>Health (Air Handling and Water Systems) Regulations 1994</i>	<i>AS 3666 (1989)</i>	<i>Health Department of WA</i>	<i>Local Government</i>
Australian Capital Territory	<i>Public Health Act 1997</i>		<i>ACT Cooling Towers and Warm Water Storage Systems Code of Practice 2000 (Code of Practice)</i>	<i>ACT Department of Health, Housing and Community Care</i>	<i>ACT Department of Health, Housing and Community Care</i>
Northern Territory	<i>Public Health Act 1952 Work Health Act 1986</i>	<i>Building Regulations 1993</i>	<i>Building Code of Aust - F4.5 &amp; 11.2, 1668.2 &amp; AS/NZS 3666.1 Guide on Legionnaire's Disease Guidance for the Control of Legionella - NEHF</i>	<i>Department of Lands Planning &amp; Environment  Department of Industries &amp; Business Territory Health Services</i>	<i>Department of Lands Planning &amp; Environment  Department of Industries &amp; Business Territory Health Services</i>

**TABLE 2. REGISTRATION, APPROVALS AND LICENSING**

<b>Jurisdiction</b>	<b>Systems regulated</b>	<b>Systems required to be registered</b>	<b>Registering authority</b>	<b>Approval or licensing of persons</b>	<b>Approving or licensing agency</b>
Queensland	<i>Airconditioning units and cooling towers*</i>	<i>Airconditioning units and cooling towers**</i>	<i>Division of Workplace Health &amp; Safety</i>	<i>No approval or licensing</i>	<i>No approval or licensing</i>
New South Wales	<i>Air handling, hot and warm-water systems and water-cooling systems</i>	<i>Water-cooling and warm-water systems</i>	<i>Local authority</i>	<i>List of approved warm water systems/TMV Installation commissioning and services of water-water systems /TMV by plumber licensed by Dept Fair Trading and TAFE trained.</i>	<i>Department of Health</i>
Victoria	<i>Cooling tower systems Warm water systems</i>	<i>Cooling tower systems</i>	<i>Building Control Commission</i>	<i>Persons performing plumbing (mechanical services) work involved in the operation of a cooling tower Proposed risk management plan auditors</i>	<i>Plumbing Industry Commission Department of Human Services</i>
Tasmania	<i>Cooling tower systems Warm water systems</i>	<i>Cooling tower systems Warm water systems</i>	<i>Local Municipal Councils</i>	<i>Risk assessment by NPER-3 Building Services Engineer at first registration and if significant modifications to towers</i>	<i>National Professional Engineering Registration Board (NPER)</i>
South Australia	<i>Proposed - Cooling tower systems Proposed - Warm water systems</i>	<i>Cooling tower systems Warm water systems</i>	<i>Local Government (DHS in unincorporated areas).</i>	<i>Proposed regulation to register Cooling towers and Warm Water Systems</i>	<i>Local Government, (DHS in unincorporated areas).</i>

**TABLE 2. REGISTRATION, APPROVALS AND LICENSING (CONTINUED)**

<b>Jurisdiction</b>	<b>Systems regulated</b>	<b>Systems required to be registered</b>	<b>Registering authority</b>	<b>Approval or licensing of persons</b>	<b>Approving or licensing agency</b>
Western Australia	<i>Water based air handling systems as defined by AS 3666; and Piped water system. In all BCA Class 3, 4, 5, 6, 7, 8 &amp; 9,</i>	<i>Approval required to install or modify</i>	<i>Local Government</i>	<i>Not required</i>	<i>Not required</i>
Australian Capital Territory	<i>Cooling tower systems Warm water storage systems</i>	<i>Cooling tower systems Warm water storage systems</i>	<i>ACT Department of Health, Housing and Community Care</i>	<i>Registered persons of cooling towers – persons registered under the Public Health Act 1997 to carry on a registered activity. A practicing engineer carries out a risk assessment for cooling towers upon application for registration and every 5 years thereafter or as directed by an authorised officer.</i>	<i>ACT Department of Health, Housing and Community Care  National Engineering Registration Board (NPER)</i>
Northern Territory	<i>BCA- mechanical ventilation &amp; warm water storage systems maintained in accordance with AS/NZS 3666.2</i>	<i>Nil</i>	<i>Nil</i>	<i>No approval or licensing</i>	<i>No approval or licensing</i>

\* Regulated only for the purpose of registration.

\*\* Airconditioning units means airconditioning plant that either: (1) incorporates a cooling tower; or (2) is rated at 50 kw or more.

**TABLE 3. MAINTENANCE AND TESTING REQUIREMENTS FOR COOLING WATER SYSTEMS**

<b>Jurisdiction</b>	<b>Mandatory inspections by govt agency and reqd frequency</b>	<b>Mandatory inspections and maintenance by owner or manager</b>	<b>Mandatory testing by owner or manager</b>	<b>Other comments</b>
Queensland	<i>Not required</i>	<i>Owner has obligation to maintain in a condition that ensures plant is safe and without risk to health.</i>	<i>Recommended monthly TBC. Advisory standard requirements not mandatory.</i>	
New South Wales	<i>Not required</i>	<i>Monthly inspections and monitoring including water treatment or performance based maintenance in accordance with AS 3666.3</i>	<i>Visual and physical checks and chemical analysis, water management monitoring by samples taken monthly for lab testing, cfu and Legionella</i>	
Victoria	<i>Not required.</i>	<i>Monthly inspections. Continuous biocide treatment. Disinfection, cleaning and re-disinfection at start-up, after shutdown &gt; 1 month, &amp; at least every 6 months.</i>	<i>HCC – Monthly samples to be taken for laboratory testing. Legionella – Not mandated. Recommended as part of the mandated risk management approach.</i>	<i>The key elements of the Victorian Legionella Reform Strategy include: (a) the registration of all cooling tower systems by the property owner; (b) the development of risk management plans for each cooling tower system; and (c) an annual audit of all risk management plans; The Health (Legionella) Regulations 2001 enable the DHS Secretary to approve the use of as different method of maintenance, testing or keeping of records.</i>
Tasmania	<i>Not required</i>	<i>Monthly inspections Six monthly cleaning Disinfection process certified annually by water treatment expert General compliance with AS3666.2 or AS 3666.3</i>	<i>Monthly HCC Six monthly Legionella test before cleaning</i>	<i>Guidelines to be reviewed in 2003 in anticipation of an Australia-wide consensus document</i>

**TABLE 3. MAINTENANCE AND TESTING REQUIREMENTS FOR COOLING WATER SYSTEMS (CONTINUED)**

Jurisdiction	Mandatory inspections by govt agency and reqd frequency	Mandatory inspections and maintenance by owner or manager	Mandatory testing by owner or manager	Other comments
South Australia	Local Government (DHS in unincorporated areas) to conduct Annual audit including Legionella sample.	Minimum monthly inspection and at least 6 monthly clean as per AS/NZS 3666.2. Variations to AS/NZS 3666.2 need to be submitted to DHS for approval.	Sample tested for Legionella as part of Annual Audit process.	Random inspections and sampling may occur if dirty cooling towers are detected. Samples may be collected during investigations of illness. Cost borne by system Owner/Operator Samples tested in NATA (or equivalent) laboratory to AS/NZS 3896
Western Australia	Not required/not specified	In accordance with AS 3666	Not required	AS 3666 Part 3 Not adopted.
Australian Capital Territory	As required.	Monthly inspections. Continuous biocide treatment. Quarterly cleaning. Cooling towers at high-risk sites – full decontamination at three monthly intervals is required.	Legionella – Monthly samples to be taken for laboratory testing. Heterotrophic micro-organisms – Monthly samples to be taken for laboratory testing.	Key elements of the ACT cooling towers legislation include: <ul style="list-style-type: none"> <li>• The registration of all cooling towers and warm water storage systems and the introduction of registered persons of cooling towers.</li> <li>• A risk assessment for each cooling tower must be carried out upon registration and every five years thereafter for newly installed cooling towers. For existing cooling towers a risk assessment must be carried out within 12 months of the commencement of the Code of Practice (7/9/2000) and every five years thereafter.</li> <li>• Notification of a high-risk event to the ACT DHHACC.</li> <li>• Mandatory regular approved maintenance of cooling towers and warm water storage systems, inspections and record keeping.</li> </ul>

**TABLE 3. MAINTENANCE AND TESTING REQUIREMENTS FOR COOLING WATER SYSTEMS (CONTINUED)**

<b>Jurisdiction</b>	<b>Mandatory inspections by govt agency and reqd frequency</b>	<b>Mandatory inspections and maintenance by owner or manager</b>	<b>Mandatory testing by owner or manager</b>	<b>Other comments</b>
Northern Territory	<i>As required.</i>	<i>All government owned buildings are regularly maintained by the Department of Transport &amp; Works &amp; have continuous biocide treatment and are periodically cleaned. S.29 WHA 1986- Private building owners have obligation to maintain in a safe and without risk to health.</i>	<i>Legionella testing not required. Advisory standard requirements not mandatory.</i>	<i>The current Public Health Legislative Review is considering the development of updated legislative Legionella controls.</i>

**TABLE 4. MAINTENANCE AND TESTING REQUIREMENTS FOR WARM WATER SYSTEMS**

<b>Jurisdiction</b>	<b>Mandatory inspections by govt agency and reqd frequency</b>	<b>Mandatory inspections and maintenance by owner or manager</b>	<b>Mandatory testing for Legionella by owner or manager</b>	<b>Other comments</b>
Queensland	<i>Not required</i>	<i>Not required</i>	<i>Not required</i>	<i>No specific legislation on warm water systems.</i>
New South Wales	<i>Not required</i>	<i>Mandatory inspections required. Cleaning and servicing annually</i>	<i>None</i>	
Victoria	<i>Not required.</i>	<i>No mandatory inspections. Disinfection by heat or chlorination and cleaning before initial start up and after shutdown &gt;1 month. Routine disinfection by heat, chlorination, ultra-violet light or a method approved by the Secretary.</i>	<i>Where disinfection is (a) by other than heat or chlorination -monthly for 12 months, then quarterly providing Legionella is not detected; or (b) by heat or chlorination and the system serves premises where overnight accommodation and health or welfare services are provided - quarterly for 12 months, then six monthly providing Legionella is not detected.</i>	<i>The Health (Legionella) Regulations 2001 refer to all warm water systems, other than those serving a single dwelling exclusively, and enable the DHS Secretary to approve the use of as different method of maintenance, testing or keeping of records.</i>
Tasmania	<i>Not Required</i>	<i>Disinfection by heat or chlorination and cleaning before initial start up and after shut down &gt; 1 month Routine disinfection by chlorine or demonstrably effective alternative</i>	<i>Not Required</i>	

**TABLE 4. MAINTENANCE AND TESTING REQUIREMENTS FOR WARM WATER SYSTEMS (CONTINUED)**

<b>Jurisdiction</b>	<b>Mandatory inspections by govt agency and reqd frequency</b>	<b>Mandatory inspections and maintenance by owner or manager</b>	<b>Mandatory testing for Legionella by owner or manager</b>	<b>Other comments</b>
South Australia	Local Government (DHS in unincorporated areas) to conduct Annual audit including Legionella sample	Weekly flush of non-used outlets. Disinfection of systems that have been closed $\geq$ 1 month. Temperature recorded monthly at storage and outlets. At least 6-monthly flushing of system using hot water or chlorine. Annual maintenance of TMV to comply with AS 3500.4.2	Sample tested for Legionella as part of Annual Audit process.	Samples tested in NATA (or equivalent) laboratory to AS/NZS 3896. Samples collected on random basis and during illness investigations. Costs borne by system Owner/Operator.
Western Australia	Not required/not specified	In accordance with AS 3666	Not required	Nil
Australian Capital Territory	Required once per year.	Cleaning and disinfection by heat or chlorination every three months.	Legionella – water samples to be taken every two months for laboratory testing.	The Code of Practice applies to all non-domestic buildings that have installed or contain warm water storage systems that are greater than or equal to 500 litres capacity.
Northern Territory	Not required	BCA-maintain water systems in compliance with AS/NZS 3666.2.	Not required	The BCA requires building owners to maintain warm water systems in compliance with AS/NZS 3666.