DUBBO REGIONAL COUNCIL

COUNCIL POLICY

Legionella Management

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POLICY

PURPOSE

The purpose of the Legionella Management Policy is to minimise the risk of transmissions of Legionellosis (Legionnaires Disease) from the built environment to susceptible hosts.

The principal goals of the Management Policy are to ensure that:

- All regulated water cooling systems and warm-water systems are registered in accordance with the Public Health Act, 2010, Public Health Regulation, 2012 and the Public Health Amendment (Legionella Control) Regulation 2018.

- All water cooling systems as defined by the Public Health Act, 2010 shall comply with legislation in respect to installation, commissioning, operation and maintenance.

- Building occupiers understand and adhere to their responsibilities of installing, operating and maintaining water cooling systems in accordance with the Public Health Act, 2010, Public Health Regulation, 2012 and the Public Health Amendment (Legionella Control) Regulation 2018.

- All water cooling towers within a water cooling system are to be issued with a Council specific Unique Identifying Number (UID)

- All water cooling systems must have an up to date Risk Management Plan (RMP) and be annually audited by an approved independent auditor.

- All water cooling systems are inspected by a Council officer upon receipt of latest RMP to ensure compliance with Public Health Legislation.

- Standard operating procedures for water cooling systems is to be followed.

BACKGROUND AND RELATED LEGISLATION

Within most local government areas the built environment will contain water cooling systems and warm water systems. These systems can provide an ideal breeding ground for *Legionella* bacteria. The *Legionella* bacteria can cause a type of pneumonia (an infection of the lung), which can be fatal, known as Legionnaires' disease and/or Pontiac fever (a mild flu-like illness). The disease has an incubation period from 2 to 10 days for the symptoms to develop after inhaling the bacteria. The *Legionella* bacteria are transmitted through aerosols.

Outbreaks of Legionnaires' disease occur from time to time but are preventable. *Legionella* bacteria can grow in poorly operated and maintained water cooling systems and warm-water systems, particularly those systems which are not maintained in a clean condition and continuously treated with a biocide to control *Legionella* bacteria, algae and biofilms.

Hundreds of residents, workers and visitors may be potentially exposed to this health hazard on a daily basis if systems are not properly installed, commissioned, operated and maintained.

The Public Health Act, 2010 (the Act) and Public Health Regulation, 2012(the Regulation) and the Public Health Amendment (Legionella Control) Regulation 2018 control various water and air systems in the built environment. These systems are known as 'regulated systems' and include:

- Water cooling systems
- Hot water systems
- Humidifying systems
- Warm water systems
- Air handling systems

However, Council is only responsible for maintaining a register of warm water Systems and water cooling systems. Council is responsible for the regulation of water cooling systems only.

The purpose of the Act and Regulation is to ensure occupiers of buildings comply with minimum legislative responsibilities in order to prevent or prohibit the growth of micro-organisms in these regulated systems that are liable to cause Legionnaires' disease and other diseases.

Related legislation includes:

- NSW Public Health Act, 2010
- NSW Public Health Regulation, 2012
- Public Health Amendment (Legionella Control) 2018
- AS/NZS 3666.1: 2011 Air-handling and water systems of buildings - Microbial control - Design, installation and commissioning
- AS/NZS 3666.2: 2011 Air-handling and water systems of buildings - Microbial control - Operation and maintenance
- AS/NZS 3666.3 2011 Air-handling and water systems of buildings - Microbial control – Performance based maintenance of cooling water systems.

SCOPE

This Policy applies to all buildings in the local government area utilising a water cooling system. The Policy will assist Council to inform the following persons to ensure compliance with the regulatory requirements in order to minimise the potential for outbreaks of Legionnaires' disease:

- Developers
- Architects
- Building occupiers
- Council's authorised officers
- Other government agencies.

DEFINITIONS

To assist in interpretation, the following definitions apply as defined by the Public Health Act, 2010 includes but is not limited to mean any of the following:

Term	Definition
Warm Water System	Being a system designed to heat and deliver water at a temperature of less than 60°C at each outlet point.

Water Cooling System	Being: (i) a device for lowering the temperature of water or other liquid by evaporative cooling, or (ii) an evaporative condenser that incorporates a device containing a refrigerant or heat exchanger together with its associated equipment and pipe work.
Occupier	The owner of a premises (e.g. Building) on which a water cooling system is located: the person entitled to occupy the premises (e.g leaseholder or tenant): or the owners corporation of premises under a strata scheme. The occupier is responsible for ensuring that their water cooling system is managed (installed, operated and maintained) in accordance with the Act and Regulation.

POLICY

1. Registration and regulation of warm water systems and water cooling systems

Council will regulate water cooling systems through an annual review and inspections as required. A fee in accordance with the adopted Fees and Charges Policy is applicable.

1.1 Annual review of water cooling systems and warm water systems.

Warm water systems are required to be registered with Council; however, the NSW Public Health Unit is responsible for the monitoring, testing and inspection on warm water units. The building occupier will be required to complete the Approved NSW Health Approved *Form 6 – Notification of installation or change in particulars* (see Appendix A) to ensure Council's register is maintained up to date and accurate.

Water cooling systems are required to be registered with Council: the building occupier will be required to provide the annual audit report using NSW Health Approved *Form 2 – Audit Report* (see Appendix B) for all water cooling systems to ensure compliance. If any details change in between audit times Council must be notified using NSW Health Approved *Form 6 –Notification of installation or change in particulars* (see Appendix A) to ensure Council's register is maintained up to date and accurate.

1.2 Inspection of water cooling systems

In addition to reviewing annual audits, water cooling systems will be inspected after an updated Risk Management Plan completed on NSW Health Approved Form - 1 *Risk Management Plan (RPM)* (see Appendix C) has been received by Council. When conducting the inspection, Council's authorised officer should:

- Make an appointment with the appropriate person responsible for the regulated system, or in the case of an emergency, present themselves at reception, advise that they are at the premises to conduct an inspection and request to speak to an appropriate person.
- Conduct the inspection at a reasonable time.
- Provide proof of identity when requested.
- Adhere to any occupational heath and safety requirements applicable whilst in attendance.
- Record all non compliances.
- Provide a written report on all outcomes from the inspection.

- Answer any questions relating to the report or other related matters.
- Be courteous and fair throughout the inspection.
- Exercise discretion when required in all of the above matters.

1.3 Re-inspection

Council will undertake a re inspection (where required) to enforce compliance with legislation. A re-inspection will be undertaken for all non compliances where the risk is considered greater than low and the non-compliance cannot be immediately rectified. A re-Inspection fee will be applied.

1.4 Verbal warnings

Council's Authorised Officers may issue verbal warnings for non-compliances where the risk of the non-compliance is considered low or can be immediately rectified.

1.5 Written warnings

Council may issue a written warning (letter) for non-compliances where the risk of the non-compliance is considered low, is the first offence and not an immediate risk to public health.

1.6 Improvement notice

Council may issue an improvement notice for non-compliance with the Public Health Act 2010, Public Health Regulation 2012, where non-compliance/s present a medium to high risk or where a warning has previously been issued.

1.7 Penalty notice

Council may issue a penalty notice where a business fails to rectify non-compliances or where the risk of non-compliance is considered medium to high.

1.8 Prohibition order

A prohibition order may be issued on a business failing to comply with Public Health Act 2010, Public Health Regulation 2012, where continued operation of a business, use of specific rooms or equipment presents a serious risk to public health.

2. Council's responsibilities and requirements

2.1 Register and provide Unique Identifying Number

Council must maintain a register of all warm-water systems and water cooling systems throughout the local government area.

All water cooling towers within a water cooling system must have a Unique Identifying Number displayed on each tower. This number is issued by a Council Officer and must contain Councils NSW Health appointed Council acronym.

2.2 Inspections

Environment and Health Officers are authorised under the NSW Public Health Act to undertake inspections of water cooling systems and take action where they believe a system does not comply with applicable legislation.

2.3 Reporting

A local government authority must on request make its register available for inspection without charge by the Secretary, a public health officer or an officer of the Ministry of Health Authorised by the Secretary.

2.4 Receipt of a Notification of Reportable Test Results

Occupiers must notify Council within 24 hours of receiving a reportable test result using NSW Health Approved Form 4 – *Notification of reportable test result* (see Appendix D). Upon receiving a notification Council will liaise with the NSW Public Health Unit as to what steps they have taken and what if any steps Council needs to take. A copy of the submitted form will be placed on file.

3. Responsibilities and requirements for building occupiers

The responsibility for a water cooling system varies according to the circumstances. Generally, the prime responsibility for a regulated system rests with the occupier of the premises where the water cooling system is located.

3.1 Occupier

The occupier of the part of premises (operation area) on which the water cooling system is situated is responsible for the proper installation, commissioning operation and maintenance of the regulated system in accordance with the Act and Regulations.

The occupier is also required to register the water cooling system and provide a Risk Management Plan to the local authority. The building manager, if engaged by the occupier, is the agent of the occupier and the occupier still bears the legal responsibility for the water cooling system.

3.2 Installation

A water cooling system must be installed and commissioned in accordance with AS/ NZ3666.1.2011. If a water cooling system is not installed as required, then both the installer and the occupier of that part of the building where the system is installed (whether the occupier is the owner or not) are both guilty of an offence.

The occupier must be given both an operation manual and a maintenance manual for the system by the installer, each of which must comply with the requirements for such manuals set out in AS/NZS 3666.2:2011. The operating manual should depict the water treatment process and include:

- Physical details (drawing)
- Operating procedures
- Shut down procedures
- Emergency contact details
- Contractor contact details
- Decontamination procedures

Manuals should be periodically reviewed by site owners/occupiers to incorporate amended legislation, standards, codes and industry practices. Manuals shall be kept onsite adjacent to the water cooling systems or in a clearly identified location in proximity to the installation. A person in charge of the facility must be familiar with the location of these manuals.

3.3 Operation

Water cooling systems must be operated in accordance with AS/NZS 3666.2:2011. A water cooling system must be equipped with a process designed to control microbial growth. The process:

- Must be in operation at all times independently of the water cooling system. The water cooling system must still be effectively disinfected even though the water cooling system may not be operating continuously. Further, the biocide does not have to be added at all times but rather the process must be in operation.
- Must be certified by a competent person annually as being an effective process of disinfection under the range of conditions that could ordinarily be expected. The competent person is certifying the process, not its performance under installed field conditions.
- Must be sufficiently effective so that no sample taken from any part of the system subjected to a test in accordance with the relevant Australian Standard has:

    - A level of Legionella of equal to or more than 1000 colony forming units per millilitre; or
    - A Heterotrophic Colony Count of equal to or more than 5000,000 colony-forming units per millilitre

The Occupier must keep a copy of the most recent Risk Management Plan at the premises and make it available for inspection on request by an authorised officer. The occupier will also be responsible of ensuring the current Risk Management Plan is provided to Council as well as the results of the annual audit.

If the occupier fails to ensure that the water cooling system is operated and maintained properly then the occupier is guilty of an offence.

3.4 Maintenance

Records must be kept whenever maintenance is performed. This includes the date, details of maintenance and the name of the contractor. The person carrying out the work needs to review the documentation and to sign the record document.

The Public Health Regulation 2012, *Clause 8 Prescribed maintenance requirements*, outlines the required Australian Standards for the maintenance of regulated systems. These are:

- AS/NZS 3666.2:2011 which is a **prescriptive approach** to operation and maintenance. Essentially the prescriptive approach requires monthly inspection and cleaning at six monthly intervals; or

- AS/NZS 3666.3:2011 **Performance based monitoring** relies on a risk assessment and risk management approach based on monthly bacteriological sampling, water quality management and operating water temperature.

Records shall be kept onsite adjacent to the water cooling system or in a clearly identified location in proximity to the installation. A person in charge of the facility must be familiar with the location of these records.

If the occupier fails to ensure that the water cooling system is operated and maintained properly then the occupier is guilty of an offence.

3.5 Registration

Under legislation, the occupier of the part of the premise where a water cooling system or warm water system is installed must notify the local Council of the following particulars:

- The address and telephone number of the premise on which the system is installed
- The name and contact details of the occupier of the premise (including residential address, e-mail address and home, business and mobile telephone numbers)
- The Australian Business Number (ABN) or Australian Company Number (ACN) if any, of the occupier of the premise
- The type of system
- Details of any inspections carried out by the local government authority for the purposes of the Act.

These particulars must be notified to the Council within one month after the person becomes the owner or occupier of the premise or if there is an alteration of the above details.

4. Disease management and outbreak responses

The NSW Health and its Public Health Unit are responsible for coordinating a case investigation and outbreak response under the relevant notifiable disease protocols. Notification is affected by medical practitioners and laboratories to the Director General of NSW Health.

Council Officers should notify the local Public Health Unit:

· Upon receipt of a notification of reportable test results. Council will liaise with the NSW Public Health Unit as to what steps they have taken and what if any steps Council needs to take.

· Multiple failures occur or when a water cooling tower has been unregistered and/or has incomplete/outdated maintenance records; or

· If a member of the public notifies Council of a health concern regarding Legionnaire's disease.

5. Fees and charges

In accordance with section 608(3) of the Local Government Act 1993, Council is able to recover costs of inspecting water cooling systems. A fee for these inspections can be adopted by Council each year and any applicable fees can be listed in Council's Revenue Policy for that year.

6. Training, appointment and competency of Authorised Officers

6.1 Appointment of Authorised Officers

An Authorised Officer is a person appointed under the Public Health Act.

6.2 Powers of Authorised Officers

For the purposes of this Act, an authorised officer may, at any reasonable time, do any one or more of the following:

- Enter the premises at any reasonable time in order to find out whether or not a system on the premises is a regulated system
- Inspect and test any system on the premises
- Investigate whether or not the prescribed operating requirements, and the prescribed maintenance requirements, have been complied with in relation to any regulated system on the premises
- Require the production of, and inspect, any records required by the regulations to be kept in relation to the operation and maintenance of any regulated system on the premises.

6.3 Competency and training of Authorised Officers

Environment and Health Officers have a key role in auditing premises and assisting NSW Health in outbreak investigations during which local knowledge is essential.

Council will support the attendance of relevant officers at training courses, as they become available.

Workplace Health and Safety applies in all situations involving the inspections of water cooling towers, all officers shall be provided with appropriate PPE (eye protection, P2 rated respirator and gloves) to safely conduct inspections.

RESPONSIBILITIES

This Policy is to be enacted by Environment and Health Officers who are authorised under the Public Health Act 2010. Council is required to report to NSW Health as requested or required by the legislation.

APPENDICES

Appendix A – Approved Form 6: Notification of installation or change of particulars:

Approved Form 6: Notification of installation or change in particulars

Purpose of the approved form

The ***Public Health Regulation 2012*** (the Regulation) requires occupiers to ensure that local government authority is notified of the following changes to their cooling water system and warm water system: notification of installation (within 1 month), change of occupier (within 1 month), and any change in particulars (such as change in occupier, within 7 days). Notification is also required for warm water systems installed in public hospitals, declared mental health facilities, private health facilities, and nursing homes.

This approved form must be completed in accordance with section 31 of the ***Public Health Act 2010*** and clause 13G, 13T, and 13Y of the ***Public Health Regulation 2012*** (the Regulation). Further information on the process and timeframe for notification is provided in the ***NSW Guidelines for Legionella Control in Cooling Water Systems***, available at www.health.nsw.gov.au/environment/legionellacontrol

Notification of installation or change in particulars

This notification relates to:		Installation		Change of occupier		Change in particulars

Notification of installation (complete if relevant)

Record	Details
Cooling water system or warm water system	
Site address	
Local government authority (where this system is located)	
Occupier name and contact details (the person or entity who owns the system)	
Building manager name and contact details (the person who manages the system on behalf of the occupier)	
Date of system installation	
Location of system within premises	
Cooling water system details (number of cooling towers, and unique identification number for each cooling tower)	

Notification of change of occupier (complete if relevant)

Record	Details
Cooling water system or warm water system	
Site address	
Local government authority (where this system is located)	
Previous occupier name and contact details (the person or entity who previously owned the system)	
New occupier name and contact details (the person or entity who will now own the system)	
Cooling water system details (number of cooling towers, and unique identification number for each cooling tower)	

Notification of change in particulars (complete if relevant)

Record	Details
Cooling water system or warm water system	
Site address	
Local government authority (where this system is located)	
Cooling water system details (number of cooling towers, and unique identification number for each cooling tower)	
Change in particulars: • Change in occupier contact details • Cooling tower(s) added to system • Cooling towers(s) removed from system • Warm water system type changed or modified • System has been decommissioned	

Details of person completing the form

Name of person completing the form	Contact details (phone number, email, postal address)
Signature of person completing the form	**Date**
Role of person completing the form	**Employer (name of company or organisation)**

Local government authority use

Record	Details
Date received	
Name and position of receiving officer	
Notification received within required timeframe	

Action taken (date and time):	
	Register of cooling water systems updated
	Unique identification number(s) issued to occupier
	Payment processed

Appendix B – Approved Form 2 – Audit Report

Approved Form 2: Audit report

Purpose of the approved form

The ***Public Health Regulation 2012*** (the Regulation) requires an audit of compliance with the Risk Management Plan (Approved From 1) and Regulation to be conducted every year. This audit report document is provided to assist the independent auditor in carrying out the audit.

The audit report is an approved form under clause 13O of the Regulation. It must be provided to the local government authority within 7 days of completion. Further guidance on how to carry out an audit is provided in the ***NSW Guidelines for Legionella Control in Cooling Water Systems***, available at www.health.nsw.gov.au/environment/legionellacontrol

Site and contact details

Provide the name, phone numbers (business hours, after hours and mobile numbers), email address, and postal address for each of the contact persons listed below.

Record	Details
Site address	
Cooling water system details (number of cooling towers, and unique identification number for each cooling tower)	
Local government authority (where this system is located)	
Occupier name and contact details (the person or entity who owns the system)	
Building manager name and contact details (the person who manages the system on behalf of the occupier)	
Competent person name and contact details (the person who signs the RMP)	
Duly qualified person name, employer and contact details (person managing the system on a day to day basis)	
Water treatment provider name and contact details (if different to duly qualified person)	
Water sampling contractor name and contact details (if different to duly qualified person)	
Mechanical services contractor name, employer and contact details (person who manages the system in aspects other than water treatment)	
Laboratory (name and NATA accreditation details)	

Period covered by this audit

Record	Dates
Period being audited (12 month period)	to
Period covered by current RMP (up to 5 year period)	to

Documentation identification and collection

Identify whether the following documents have been completed and provided for auditing. Documents are provided by the occupier or duly qualified person. Collect these documents in this step.

Documentation provided	Yes	No	N/A
Current valid RMP – 1 count			
Monthly report covering the following items – 12 counts • Inspection • Maintenance (including servicing) • Chemical analysis • Microbial testing (for ***Legionella*** count and heterotrophic colony count)			
Records of actions required to be completed by the RMP during this audit period (for example, removal of a dead leg or replacement of a drift eliminator)			
Records of actions taken to address non-compliance identified by previous audit (including photographs and receipts as evidence of compliance)			
Records of any notifications made to the local government authority (for example, notification of a reportable test result)			
Records of enforcement action taken by a local government authority or NSW Health (for example, improvement notices and prohibition orders)			
Records of additional actions taken in order to comply with the RMP, authorised officer requirements, or for any other reason			

Compliance with Risk Management Plan (RMP) and Regulation

Assess compliance with the RMP and Regulation in this step, based on documents collected in the previous step. Auditors should keep a record of documents (and elements of the RMP) that were checked during the audit using their own worksheets, which can be attached to this form.

Compliance demonstrated	Yes	No	N/A
Actions, control strategies and monitoring documented in the RMP (see “Maintenance plan” section) were completed			
Actions, control strategies and monitoring documented in the RMP (see “Maintenance plan” section) were completed, within the timeframe required by the RMP			
Actions required by the Regulation were completed:			
• Sampling and testing the cooling water system for ***Legionella*** count and heterotrophic colony count, every month – 12 counts			
• Notifying the local government authority of a reportable test result, within 24 hours of receiving the result – compare date and time on laboratory test report with date and time that Approved Form 4 was received by local government authority			
• Providing the local government authority with a certificate of RMP completion, within 7 days of receiving the document – recorded on Approved Form 1			
• Providing the local government authority with a certificate of audit completion, within 7 days of receiving the document – recorded on previous Approved Form 2			
• Preparing a monthly report of inspection, microbial testing, and chemical analysis, every month – 12 counts, recorded on Approved Form 3			
Actions to address non-compliance identified by the previous audit were taken			

Summary of non-compliance demonstrated by this audit

Assess compliance with the RMP and Regulation in this step, based on documents collected in the previous step. Auditors should keep a record of documents (and elements of the RMP) that were checked during the audit using their own worksheets, which can be attached to this form.

List of non-compliance demonstrated by this audit

Attach documents, worksheets and photographs to support the audit findings after this page.

Certificate of audit completion

Outcome of audit

Record	Details
Date of audit completion	
Date of notification to occupier	
Date when next audit is required (an audit is required for every contiguous 12 month period, and must be completed within 2 months of end of this audit period)	
Compliance with RMP and Regulation demonstrated	

Period covered by this audit

Record	Dates
Period being audited (12 month period)	to
Period covered by current RMP (up to 5 year period)	to

Summary of non-compliance demonstrated by this audit

List of non-compliance demonstrated by this audit

Declaration by independent auditor

I declare that I have been approved by the Secretary of NSW Health to audit cooling water systems, and that I meet the independence requirements set out in the Regulation.

Name of independent auditor	**Contact details (phone number, email, postal address)**
Signature of independent auditor	**Date**
NSW Health auditor number	**Employer (name of company or organisation)**

Local government authority use

Record	**Details**
Date received	
Name and position of receiving officer	
Certificate of audit completion received within 7 days of completion (date of declaration above)	
Certificate of audit completion received within 2 months of end of this audit period	

Action taken (date and time):	
	Unique identification numbers confirmed
	Auditor number and current registration confirmed
	Register of cooling water systems updated
	Flagged for follow up
	Desktop (off site) follow up
	Site investigation and inspection
	Improvement notice issued
	Prohibition order issued

Appendix C – Approved Form 1 – Risk Management Plan (RMP)

Approved Form 1: Risk Management Plan (RMP)

Purpose of the approved form

The ***Public Health Regulation 2012*** (the Regulation) requires a risk assessment to be carried out every five years (or more frequently if required), and documented in a Risk Management Plan (RMP). This RMP document is provided to assist the competent person in carrying out the risk assessment.

The purpose of the Risk Management Plan (RMP) is to apply and document best practices to effectively control the growth and transmission of ***Legionella*** bacteria while considering the risks that are unique to the cooling water system being assessed. It is an important safeguard in preventing Legionnaires' disease and the basis for managing cooling water systems in NSW. Additional documentation, including worksheets and evidence, can be attached at the end of this form.

The RMP document is an approved form under clause 13N of the Regulation. It must be provided to the local government authority within 7 days of completion. Further guidance on how to carry out a risk assessment is provided in the ***NSW Guidelines for Legionella Control in Cooling Water Systems*** (the Guidelines), available at www.health.nsw.gov.au/environment/legionellacontrol

Using the RMP document

The RMP document must be completed by a competent person as defined in the Regulation and Australian Standard (AS/NZS) 3666 Part 3. The Regulation allows a person working under the supervision of a competent person to undertake a risk assessment, provided that the competent person ultimately confirms the effectiveness and takes responsibility for the risk assessment and resulting RMP.

A risk assessment should involve:

- Site visits to the cooling water system being assessed, including inspection of cooling towers
- Interviews with personnel involved in the installation, operation or maintenance of the cooling water system
- Reviews of existing documentation, including monthly reports of inspection, maintenance (including servicing), chemical analysis and microbial testing; and operating and maintenance manuals
- Other activities that help determine the risk factors that are unique to the cooling water system being assessed.

The competent person should complete the tables that follow; assign a risk level (low, medium or high) for each of the five risk categories; and specify control strategies to reduce the risk of ***Legionella*** growth and transmission posed by the cooling water system. It is important to base the risk assessment on data and evidence gathered on- and off-site; these findings should be documented in the "observation" section for each risk factor.

Site and contact details

Provide the name, phone numbers (business hours, after hours and mobile numbers), email address, and postal address for each of the contact persons listed below.

Record	Details
Site address	
Cooling water system details (number of cooling towers, and unique identification number for each cooling tower)	
Local government authority (where this system is located)	
Location of cooling towers within building or site (describe and attach a site map)	
Occupier name and contact details (the person or entity who owns the system)	
Building manager name and contact details (the person who manages the system on behalf of the occupier)	
Competent person name and contact details (the person who signs the RMP)	
Duly qualified person name, employer and contact details (person managing the system on a day to day basis)	
Water treatment provider name and contact details (if different to duly qualified person)	
Water sampling contractor name and contact details (if different to duly qualified person)	
Mechanical services contractor name, employer and contact details (person who manages the system in aspects other than water treatment)	
Laboratory (name and NATA accreditation details)	

Technical details

Provide the technical details of the cooling water system.

Record	Details
Plant served by the system	
Type of heat rejection device	
Make and model	
Heat rejection duty	
Year of construction and installation	
Heat exchanger or condenser served	
Likely design water temperatures (°C)	
Materials used in the basin, casing, fill, drift eliminators, and other equipment	
Drift eliminators drift loss performance (%)	
System water volume (m^3)	
Approximate submerged wet area (m^2)	
Ratio of wet area to water volume	
Description of the water treatment system and chemicals in use	

Risk analysis

Assign a risk level (low, medium or high) for each of the five risk categories that follow.

The risk assessment should provide control strategies which reduce the risk posed by the cooling water system. For example, a risk factor can move from “high” inherent (or initial) risk to “medium” or “low” residual (or remaining) risk. If the control strategy or mitigation measure is permanent, the risk no longer exists and can be marked as “low” inherent risk in future RMPs. If the control strategy is temporary, ongoing, or incomplete, then it may only be possible to reduce a “high” inherent risk to a “medium” residual risk. If there is no control strategy to address a “high” residual risk, then the occupier should consider removing or replacing the water cooling system in the longer term.

The overall risk of ***Legionella*** growth and transmission from a cooling water system is calculated by considering the residual (or remaining) risk for each risk factor, within each risk category, to determine the overall risk evaluation for the system. This overall residual risk determines how often a risk assessment of the cooling water system is required. Further guidance is provided in the “Risk evaluation” section below and the Guidelines.

Risk level	Explanation and actions required	RMP frequency
Low	This level indicates a low risk of ***Legionella*** transmission from this cooling water system. Continue to manage the cooling water system using the existing maintenance and monitoring procedures. Continue using the existing water treatment system.	Five years
Medium	This level indicates a medium risk of ***Legionella*** transmission from this cooling water system. This level suggests that the ability of the system to inherently discourage bacterial growth is reduced. Urgently review the effectiveness of the maintenance procedures and water treatment system. Review the results of monitoring (including monthly chemical analysis and microbial testing), deterioration of equipment, and safe access for maintenance. Determine the actions to be taken and allocate priority.	One to five years
High	This level indicates a high risk of ***Legionella*** transmission from this cooling water system. This level suggests that the system may be actively encouraging growth and transmission of microorganisms. Immediately review the effectiveness of the maintenance procedures and water treatment system. Correct any deficiencies and implement remedial actions. Consider whether the cooling water system is at the end of its useful life and whether it needs to be replaced.	Every year

The tables below indicate key performance indicators (KPIs) with an asterisk. KPIs in relation to cooling water systems are risk factors that are testable, assessable and controllable for the performance, monitoring and verification of the system. Not all KPIs are important risk factors for ***Legionella*** growth and transmission; however, they are readily measurable and provide an overall assessment of the system’s performance.

Risk category 1: Stagnant water

Consider the consequence and likelihood associated with each of the risk factors identified below. Include any additional risk factors identified in this risk category. Key performance indicators are marked with an asterisk.

Risk factor	Observation	Inherent risk (L, M, H)	Control strategy	Residual Risk (L, M, H)
Presence of water in dead legs				
System not in use due to intermittent operation or seasonal usage				
Overall risk level (L, M, H) for this risk category (stagnant water)				
Additional comments				

Risk category 2: Nutrient availability and growth

Consider the consequence and likelihood associated with each of the risk factors identified below. Include any additional risk factors identified in this risk category. Key performance indicators are marked with an asterisk.

Risk factor	Observation	Inherent risk (L, M, H)	Control strategy	Residual Risk (L, M, H)
Presence of nutrients (from air and water intake)				
Presence of biofilm (slime)				
Water temperature favourable to microbial growth*				
Direct sunlight (which promotes algal growth)				
Overall risk level (L, M, H) for this risk category (nutrient availability)				
Additional comments				

Risk category 3: Poor water quality

Consider the consequence and likelihood associated with each of the risk factors identified below. Include any additional risk factors identified in this risk category. Key performance indicators are marked with an asterisk.

Risk factor	Observation	Inherent risk (L, M, H)	Control strategy	Residual Risk (L, M, H)
Concentration of ***Legionella*** bacteria (summarise test results over previous RMP period if available)*				
Concentration of other heterotrophic bacteria (summarise test results over previous RMP period if available)*				
Presence of protozoa and algae				
Water quality (cleanliness)*				
Water quality (pH)*				

Risk factor	Observation	Inherent risk (L, M, H)	Control strategy	Residual Risk (L, M, H)
Water quality (presence of corrosion products)*				
Water quality (presence of scale, fouling)				
Water quality (conductivity and total dissolved solids)*				
Water quality (other chemical control limits out of range)*				
Water quality (suspended solids, e.g. from nearby construction work)				
Water quality (control of water treatment chemicals)				

Risk factor	Observation	Inherent risk (L, M, H)	Control strategy	Residual Risk (L, M, H)
Water quality (control of bleed)				
Characteristics of makeup water (physical, chemical, microbiological)				
Microbial control program (dual biocides, oxidising, non-oxidising)				
Overall risk level (L, M, H) for this risk category (poor water quality)				
Additional comments				

Risk category 4: Deficiencies in the cooling water system

Consider the consequence and likelihood associated with each of the risk factors identified below. Include any additional risk factors identified in this risk category. Key performance indicators are marked with an asterisk.

Risk factor	Observation	Inherent risk (L, M, H)	Control strategy	Residual Risk (L, M, H)
System size (calculate ratio of surface area available for biofilm development compared to water volume). Assign risk as “high” if ratio >20, “moderate” if ratio 10 to 20, “low” (desirable) if ratio <10				
Physical condition of system (e.g. poor quality construction materials, collapsed fill, uncontrolled water losses, holes)*				
Aerosol generation and drift elimination				
Overall risk level (L, M, H) for this risk category (deficiencies)				
Additional comments				

Risk category 5: Location and access to cooling towers

Consider the consequence and likelihood associated with each of the risk factors identified below. Include any additional risk factors identified in this risk category. Key performance indicators are marked with an asterisk.

Risk factor	Observation	Inherent risk (L, M, H)	Control strategy	Residual Risk (L, M, H)
Aerosol dispersion and public access to system				
System location and environment (environmental contamination, and burden on water treatment chemicals)				
System access for inspection, maintenance, and cleaning				
Overall risk level (L, M, H) for this risk category (location)				
Additional comments				

Risk evaluation

Summarise and compare the risk levels for each of the five risk categories in the previous tables. Assign an overall risk level for this cooling water system. The competent person must assign the overall risk level based on their judgement and technical understanding of the system; in some cases, a “high” residual risk level for one risk category may result in an overall “high” risk evaluation for the cooling water system.

Risk category	**Residual risk level (L, M, H)**
Stagnant water	
Nutrient availability and growth	
Poor water quality	
Deficiencies in the cooling water system	
Location and access to cooling towers	
Overall risk level (L, M, H) for this cooling water system	
Additional comments (including justification for “high” overall residual risk)	

Maintenance plan

Outline the frequency for different maintenance activities associated with this cooling water system. The Regulation requires a minimum frequency of monthly inspection, maintenance (including servicing), chemical analysis, and microbial testing. More frequent maintenance (including servicing) can be required by the competent person, and justified below.

The Regulation does not specify a minimum frequency for cleaning; this must be determined by the competent person. While AS/NZS 3666 Part 2 requires cleaning to take place every six months, Part 3 does not specify the cleaning frequency. As a general guide, cleaning can take place every six months, and any variation to this frequency should be specified by the competent person and justified below.

Component	**Normative interval**	**Specified interval**
Inspection	Monthly (required by Regulation)	
Maintenance (including servicing)	Monthly (required by Regulation)	
Chemical analysis (including corrosion monitoring)	Monthly (required by Regulation)	
Microbial testing (for ***Legionella*** and HCC)	Monthly (required by Regulation)	
Cleaning (justify any variation from six monthly cleaning)	Six monthly (recommended)	

Control range for risk factors

Outline the control range for risk factors identified in the previous tables. Example control ranges are provided below; the competent person should specify a target control range for the cooling water system.

Risk factor	Example control range	Specified control range
Legionella count	<10 cfu/mL, using AS/NZS 3896:2017 method	
Heterotrophic colony count (HCC)	<100,000 cfu/mL, using AS/NZS 4276.3.1:2007 method	
Total dissolved solids	<700 ppm preferred (but >200)	
Conductivity	<1,000 µS/cm (but >300)	
pH, for bromine formulations	7.0-9.0	
pH, for chlorine and DBNPA formulations	7.0-8.5	
pH for non-oxidisers	Refer to supplier targets	
Total alkalinity	70 to 400 ppm for most localities	
Corrosion rate limits	0.15 mm per year (mild steel and iron), 0.005 mm per year with no pitting (stainless steel), 0.005 mm per year (copper)	
Suspended solids	Visually low	
Calcium hardness	<500 ppm	
Chlorides	<250 ppm for most localities	
Corrosion inhibitor	Refer to manufacturer limits	

The duly qualified person (DQP) must operate and maintain the cooling water system within these control ranges through an appropriate water treatment and maintenance program that meets the requirements of AS/NZS 3666 Part 3. The DQP must monitor and make changes to the water treatment program when any of the above risk factors fall outside the specified control range. This can be done using the control strategies listed in the previous tables.

Action plan

Develop an action plan which ensures that the risks identified are adequately controlled, within an appropriate timeframe. The action plan should reference control strategies provided in previous five risk category tables, and state who will carry out these actions. Compliance with the requirements of the action plan will be reviewed by the independent auditor every year.

Risk category	Control strategy	Person responsible	Deadline

Attach documents and photographs to support the RMP document after this page.

Certificate of Risk Management Plan (RMP) completion

Outcome of risk assessment

Record	Details
Date of site inspection	
Date of RMP completion	
Date of notification to occupier	
Date when next RMP is required (maximum five years from date of this RMP)	
Overall risk level (L, M, H) for this cooling water system	

Site and contact details

Provide the name, phone numbers (business hours, after hours and mobile numbers), email address, and postal address for each of the contact persons listed below.

Record	Details
Site address	
Cooling water system details (number of cooling towers, and unique identification number for each cooling tower)	
Local government authority (where this system is located)	
Location of cooling towers within building or site (describe and attach a site map)	
Occupier name and contact details (the person who owns the system)	
Building manager name and contact details (the person who manages the system on behalf of the occupier)	
Competent person name and contact details (the person who signs the RMP)	
Duly qualified person name, employer and contact details (person managing the system on a day to day basis)	
Water treatment provider name and contact details (if different to duly qualified person)	
Water sampling contractor name and contact details (if different to duly qualified person)	
Mechanical services contractor name, employer and contact details (person who manages the system in aspects other than water treatment)	
Laboratory name and contact details	

Declaration by competent person

I declare that I am a competent person and that this risk assessment and risk management plan ***(RMP) has been completed by me, or a person under my supervision, in compliance with the NSW Public Health Regulation 2012 and in accordance with Australian Standard 3666 Part 3.***

Name of competent person	**Contact details (phone number, email, postal address)**
Signature of competent person	**Date**
Training, qualifications and experience	**Employer (name of company or organisation)**

Local government authority use

Record	**Details**
Date received	
Name and position of receiving officer	
Certificate of RMP completion received within 7 days of completion (date of declaration above)	
Certificate of RMP completion received by the date required by previous RMP	

Action taken (date and time):	
	Unique identification numbers confirmed
	Fee paid
	Register of cooling water systems updated
	Flagged for follow up
	Referred to authorised officer

Appendix D – Approved Form 4 – Notification of reportable test results:

Approved Form 4: Notification of reportable test results

Purpose of the approved form

The ***Public Health Regulation 2012*** (the Regulation) requires occupiers to ensure that the cooling water system is tested for ***Legionella*** count and heterotrophic colony count (HCC), on a monthly basis. Occupiers must notify the local government authority within 24 hours of receiving a reportable test result of ***Legionella*** count ≥1,000 colony forming units per millilitre (cfu/mL) or HCC ≥5,000,000 cfu/mL.

This approved form must be completed in accordance with clause 13R of the Regulation. Further information on the process of notification and responding to elevated microbial levels is provided in the ***NSW Guidelines for Legionella Control in Cooling Water Systems***, available at www.health.nsw.gov.au/environment/legionellacontrol

Site and contact details

Provide the name, phone numbers (business hours, after hours and mobile numbers), email address, and postal address for each of the contact persons listed below.

Record	Details
Site address	
Cooling water system details (number of cooling towers, and unique identification number for each cooling tower)	
Local government authority (where this system is located)	
Occupier name and contact details (the person or entity who owns the system)	
Duly qualified person name, employer and contact details (person managing the system on a day to day basis, and attended the site during this month)	
Laboratory (name and NATA accreditation details)	

Reportable test results

Record	Details
Type of test (***Legionella*** or heterotrophic colony count)	
Test result (in cfu/mL)	
Description of sampling point (type of sampling point, and location on cooling water system)	
Date and time of sampling by duly qualified person	
Date and time of testing by laboratory	
Date and time of result receipt by occupier	

Attach laboratory report(s) after this page.

The Regulation requires certain results and records to be kept on the premises and made available immediately, or kept electronically and made available within 4 hours of request. These include: operating and maintenance manuals; RMPs; results of microbial testing and chemical analysis; and maintenance records (in accordance with section 3.7 of AS/NZS 3666.3:2011).

Details of person completing the form

Name of person completing the form	Contact details (phone number, email, postal address)
Signature of person completing the form	**Date**
Role of person completing the form	**Employer (name of company or organisation)**

Local government authority use

Record	Details
Date received	
Name and position of receiving officer	
Notification received within 24 hours of occupier receiving a reportable test result from laboratory	

Action taken (date and time):	
	Unique identification numbers confirmed
	Register of cooling water systems updated with reportable test result
	Contacted occupier or duly qualified person (DQP) to confirm control strategies put in place in accordance with the Risk Management Plan (RMP) and AS/NZS 3666.3:2011
	Contacted occupier or DQP to obtain second and third microbial test results
	Flagged for follow up
	Desktop (off site) follow up
	Site investigation and inspection
	Improvement notice issued
	Prohibition order issued