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# 1 PURPOSE

To ensure legal compliance and minimise risks to health and safety associated with cooling tower systems.

To ensure that for all cooling tower systems there is a process that manages:

* registration;
* risk management plans;
* monitoring, controlling, maintenance; and
* reporting.

# 2 SCOPE

This procedure applies to all registrable cooling towers under the management and control of the University of Melbourne.

# 3 DEFINITIONS

Approved auditor

An auditor certified by the Victorian Department of Health and Human Services to undertake cooling tower system audits.

Legionella

Bacteria (Legionella pneumophila) that can cause a potentially fatal form of pneumonia known as Legionnaires' disease. Legionella can also cause less serious illnesses which are not permanently debilitating.

Risk management plan

Cooling tower system risk management plan

Critical risks

The five critical risks that a risk management plan must address are:

stagnant water, including the lack of water recirculation in a cooling tower system and the presence of dead-end pipework and other fittings in a cooling tower system;

nutrient growth, including:

the presence of biofilm, algae and protozoa in a cooling tower system;

water temperature within a range that will support rapid growth of microorganisms in a cooling tower system; and

the exposure of the water of a cooling tower system to direct sunlight; and

poor water quality, including the presence of solids, Legionella and high levels of micro-organisms in a cooling tower system;

deficiencies in a cooling tower system, including deficiencies in the physical design, condition and maintenance of the system; and

the location of, and access to, a cooling tower or cooling tower system, including the potential for environmental contamination of the system and the potential for exposure of people to the aerosols of the system.

(Public Health and Wellbeing Regulations 2009 [Vic])

# 4 PROCEDURE

## 4.1 Cooling tower registration

The Director, Campus Services shall ensure that each existing cooling tower system is registered with the Department of Health and Human Services at all times when in operation.

The Director, Campus Services shall ensure that all new cooling tower systems are registered prior to operation.

## 4.2 Risk management plan

The Director, Campus Services shall implement and maintain a risk management plan that addresses the critical risks for each cooling tower system.

Using the [Health & Safety: Cooling tower system risk classification table](https://safety.unimelb.edu.au/__data/assets/pdf_file/0010/4680667/cooling-tower-system-risk-classification.pdf), a risk management plan must:

* identify, assess and evaluate the overall Legionella risk associated with a system; and
* control those Legionella risks.

Each risk management plan must be:

* reviewed annually by the Director, Campus Services (or delegate); and
* audited annually by an approved auditor.

The annual review must determine whether risk management plans have adequately controlled the risks associated with each system and make improvements where required.

The annual audit must determine whether risk management plans have:

* complied with legislation;
* been implemented; and
* been reviewed within 12 months of the audit.

The Director, Campus Services must ensure that the Department of Health and Human Services is advised within 30 days of:

* addition or removal of a cooling tower within a cooling system;
* removal or permanent decommissioning of a system; and
* relocation of a system.

## 4.3 Controlling critical risks

Legionella risks identified in the risk management plan must be controlled and reviewed by the Director, Campus Services. Controls must include:

* strategies and treatments to address the critical risks; and
* operational programs.

The Director, Health & Safety may develop and publish guidance on controlling critical risks. The Director, Health & Safety shall that guidance material is based on Department of Health and Human Services publications and requirements.

[Health & Safety: Cooling Towers – Controlling the critical risks and operational programs](https://safety.unimelb.edu.au/__data/assets/pdf_file/0011/4680668/Cooling-towers-Control-the-critical-risk-and-operational-programs.pdf)

## 4.4 Records

The Director, Campus Services must keep a record of all work associated with each system including all repairs, maintenance and testing work. As a minimum the records will include those listed in section 2.8 of Cooling towers: Controlling the critical risks and operational programs.

The Director, Campus Services must keep records at the building location of each system or at the site where systems are located.

## 4.5 Water test results

The Director, Campus Services must ensure all water test results are maintained and reviewed including:

* chemical parameters such as, biocides, pH, conductivity, water temperature;
* heterotrophic colony count levels (HCC);
* Legionella bacteria levels (where indicated by the risk management plan or following adverse test results).

**4.6 Adverse water test results**

The Public Health and Wellbeing Regulations (Vic) prescribe a series of actions which must be undertaken following the detection of Legionella and/or an HCC of greater than 200,000 CFU/ml.

The Director, Campus Services must ensure that where an adverse test result occurs, the prescribed series of actions are undertaken. See section 4.4.2 of Cooling towers: Controlling the critical risks and operational programs for full details.

## 4. Outbreak of Legionnaires'

Upon notification by the Department of Health and Human Services that staff, students or others may have been affected by a Legionella outbreak either from:

* a University of Melbourne cooling tower; or
* a cooling tower not under the control of the University of Melbourne;

the Director, Campus Services, in consultation with the Director, Health & Safety, will follow the instructions of the Department of Health and Human Services.

## 4.8 Buildings not under the management and control of Property & Campus Services

The Head of School/Division responsible for leasing or occupying a building must undertake the Director, Asset Services' roles and responsibilities as outlined in this procedure.

# 5 RESPONSIBILITIES

Director, Campus Services

Director, Health & Safety

Head of School/Division

# 6 REFERENCES

*Public Health and Wellbeing Act 2008* (Vic)

*Public Health and Wellbeing Regulations 2019* (Vic)

Department of Health and Human Services, A guide to developing risk management plans for cooling tower systems (Vic)

# 7 DOCUMENT CONTROL

## 7.1 Processes

Nil

## 7.2 Forms

[Health & Safety: Cooling tower system risk classification table](https://safety.unimelb.edu.au/__data/assets/pdf_file/0010/4680667/cooling-tower-system-risk-classification.pdf)

## 7.3 Guidance

[Cooling Towers – Controlling the critical risks and operational programs](https://safety.unimelb.edu.au/__data/assets/pdf_file/0011/4680668/Cooling-towers-Control-the-critical-risk-and-operational-programs.pdf)