Legionnaires' Disease Environmental Investigation Procedures

Summary
This document sets out the procedures for investigating outbreaks of Legionnaires' disease in accordance with section 33 of the Public Health Act 2010. These procedures should be followed by authorised officers that are employed by both NSW Health and local government authorities.

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Secretary, NSW Health
LEGIONNAIRES’ DISEASE ENVIRONMENTAL INVESTIGATION PROCEDURES

GUIDELINE SUMMARY

The Legionnaires’ Disease Environmental Investigation Procedure sets out the procedures for investigating outbreaks of Legionnaires’ disease in accordance with section 33 of the Public Health Act 2010 (the Act).

KEY PRINCIPLES

The Act and Public Health Regulation 2012 (the Regulation) set out the scope of activity that can be undertaken to ensure Legionella control during outbreaks of Legionnaires’ disease. Section 33 of the Act states:

1. Any investigation of an outbreak of Legionnaires’ disease is to be carried out in accordance with any procedures approved by the Secretary for the purposes of this section.

2. An authorised officer investigating an occurrence of Legionnaires’ disease may, by order in writing served on the occupier of the premises, direct that a regulated system that is on the premises and is described in the order be maintained as directed by the order while it is in force.

3. Any such direction is a prescribed maintenance requirement for the purposes of this Division, and prevails to the extent of any inconsistency with any other prescribed maintenance requirement.

AS/NZS 3666.3:2011 outlines a performance based approach to the maintenance of cooling water systems with respect to the control of microorganisms including legionellae. The procedure adopted depends on the level of Legionella or heterotrophic colony count detected and involves a sequential process beginning with an online disinfection, followed by online decontamination and finally a system decontamination.

The Legionnaires’ Disease Environmental Investigation Procedure allows Authorised Officers to require system decontamination in preference to an online disinfection or online decontamination.

USE OF THE GUIDELINE

These procedures should be followed by Authorised Officers that are employed by both NSW Health and local government authorities.

REVISION HISTORY

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<th>Version</th>
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1 BACKGROUND

1.1 About this document

This Guideline sets out the procedures for investigating outbreaks of Legionnaires’ disease in accordance with Section 33 of the Act.

These procedures should be followed by authorised officers that are employed by both NSW Health and local government authorities.

1.2 Key definitions

The Public Health Act 2010, Public Health Regulation 2012, and AS/NZS 3666.3:2011 define key terms which are used in this Guideline.

1.3 Legal and legislative framework

The Act and the Regulation set out the scope of activity that can be undertaken to ensure Legionella control during outbreaks of Legionnaires’ disease. Section 33 of the Act states:

(1) Any investigation of an outbreak of Legionnaires’ disease is to be carried out in accordance with any procedures approved by the Secretary for the purposes of this section.

(2) An authorised officer investigating an occurrence of Legionnaires’ disease may, by order in writing served on the occupier of the premises, direct that a regulated system that is on the premises and is described in the order be maintained as directed by the order while it is in force.

(3) Any such direction is a prescribed maintenance requirement for the purposes of this Division, and prevails to the extent of any inconsistency with any other prescribed maintenance requirement.
2 REMEDIAL ACTION

2.1 Types of remedial action

There are three main procedures (or remedial actions) that can be carried out in response to detections of Legionella or heterotrophic colony count in cooling water systems. The procedure adopted is dependent on the level of Legionella or heterotrophic colony count detected. These procedures are set out as control strategies in Table 3.1, Table 3.2, Appendix B, and Appendix C of AS/NZS 3666 Part 3.

AS/NZS 3666 Part 3 takes a performance based (or risk management) approach to the maintenance of cooling water systems, so that escalating action can be taken in response to a certain level of microbial count. These actions and levels are summarised in Table 1.

Table 1: Summary of control strategies in AS/NZS 3666 Part 3

<table>
<thead>
<tr>
<th>Action</th>
<th>Legionella count</th>
<th>Heterotrophic colony count</th>
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<tbody>
<tr>
<td>Online disinfection</td>
<td>≥10 and &lt;1000 cfu/mL</td>
<td>≥100,000 and &lt;5,000,000 cfu/mL</td>
</tr>
<tr>
<td>Online decontamination</td>
<td>≥1000 cfu/mL</td>
<td>≥5,000,000 cfu/mL</td>
</tr>
<tr>
<td>System (offline) decontamination</td>
<td>Second count ≥1000 cfu/mL obtained 3-7 days after the first count</td>
<td>Second count ≥5,000,000 cfu/mL obtained 3-7 days after the first count</td>
</tr>
</tbody>
</table>

During routine maintenance, online disinfection and online decontamination are undertaken prior to system decontamination (see Table 1). However, during outbreaks of Legionnaires’ disease an authorised officer is able to require system decontamination to be undertaken in preference to online disinfection or online decontamination, using section 33 of the Act.

Cooling towers can be cleaned and/or shut down in order to reduce the risk of Legionnaires’ disease. During an outbreak of Legionnaires’ disease, cleaning can be required as part of online disinfection or online decontamination (see Table 1). Carrying out the system decontamination procedure (see Table 1) includes both cleaning and temporary shut down, and this can be required during an outbreak of Legionnaires’ disease.

2.2 Cleaning

System decontamination includes cleaning of all wetted surfaces of the cooling tower in accordance with the supplier’s instructions, or by using water spray and mechanical cleaning as necessary (see Appendix C of AS/NZS 3666 Part 3).
Cleaning is defined in AS/NZS 3666 Part 1 as a maintenance action that results in a system being free from visible sludge, foam, slime (including algae and fungi), rust, scale, dirt, dust and any deposit or accumulation of impurities, or any other foreign material.

An authorised officer is able to require system decontamination as it is a prescribed maintenance requirement under the Act. An improvement notice can be issued to require cleaning to be undertaken (see Note to section 33 of the Act).

2.3 Shut down

Shut down is the process of suspending the use of a cooling water system using a defined shut down procedure. Cooling water systems can be shut down temporarily (for example, for cleaning or repair) or can undergo intermittent or seasonal use (operated only during some parts of the year).

An authorised officer is able to require a system to be shut down in order to reduce the risk of ongoing aerosolisation and transmission of bacteria from a cooling tower suspected to be contributing to an outbreak of Legionnaires’ disease. A prohibition order can be issued to require a system to be shut down (see Note to section 33 of the Act).
3 ENFORCEMENT

During an investigation of Legionnaires’ disease, the procedures set out in this Guideline and approved by the Secretary of NSW Health allow certain notices, orders or directions to be issued by an authorised officer. These procedures can be enforced by issuing a notice of direction, improvement notice or prohibition order.

The remainder of this document sets out some circumstances that may arise during an investigation of an outbreak of Legionnaires’ disease. In these circumstances, an authorised officer may use section 33 of the Act to reduce the risk of Legionnaires’ disease on the community by issuing:

- A notice of direction, requiring compliance with the procedures set out in this document (see section 33(2) of the Act)
- An improvement notice or prohibition order, if enforcement of the notice of direction is required (see section 33(3) of the Act).

There are three options for issuing these orders.

3.1 Option 1: Issue improvement notice

An improvement notice requires a prescribed installation, operation, or maintenance requirement (set out in Part 2, Division 6 of the Regulation) to be complied with within a period of 72 hours. The notice specifies the actions to be taken to comply with the enforceable requirement.

An authorised officer is able to issue an improvement notice to require compliance with one of these control strategies, in the sequence required by Table 3.1 or Table 3.2 of AS/NZS 3666 Part 3. This can include urgent disinfection, decontamination, cleaning, or shut down of a regulated system.

3.2 Option 2: Issue improvement notice, followed by prohibition order

A prohibition order can be issued by the Secretary of NSW Health, a local government authority, or a General Manager of a local government authority if an improvement notice has not been complied with within the time required under the notice, and the issue of the prohibition order is necessary to prevent or mitigate a serious risk to public health.

A certificate of clearance must be issued if, after an inspection of the premises subject to the order, an authorised officer is satisfied that there is no serious danger to public health.

3.3 Options 3: Issue prohibition order immediately

A prohibition order can be issued immediately without first issuing an improvement notice if:

- The issue of the order is urgently necessary to prevent or mitigate a serious risk to public health, and
The circumstances in which an improvement notice may be issued exist (see section 45(1)(b) of the Act).

A decision to issue a prohibition order under section 45(1)(b) of the Act involves important public health and legal considerations and further advice should be sought before this decision is made. The order must relate to a prescribed installation, operation, or maintenance requirement set out in Part 2, Division 6 of the Regulation.

3.4 Supporting documents

Supporting forms, templates for issuing orders, and inspection checklists can be found on the NSW Health Legionella Control website at:
4  SUPPORTING REFERENCES

3. Australian Standard 3666 (2011)
   o AS/NZS 3666.1:2011 Air-handling and water systems of buildings – Microbial control – Design, installation and commissioning
   o AS/NZS 3666.2:2011 Air-handling and water systems of buildings – Microbial control – Operation and maintenance
   o AS/NZS 3666.3:2011 Air-handling and water systems of buildings – Microbial control – Performance-based maintenance of cooling water system