NSW Health General Roles and Responsibilities
NSW public health services are responsible for:

- The provision of public health services to prevent, prepare for, respond to and recover from an outbreak of Legionnaires' disease.
- Conducting surveillance of disease incidence, morbidity and mortality in the community in the prevention, preparedness, response and recovery phases of the outbreak.
- Coordination and control of all public health responses during an outbreak of Legionnaires' disease.
- Efficient exchange of information needed for management of an outbreak of Legionnaires' disease between stakeholders.

Operational Phases
1. Prevention and Preparedness
Prevention of Legionnaires' disease is through regulatory, monitoring and enforcement activities of the local council and the Public Health Unit.

Clause 14(1) of the Regulation requires that an outbreak investigation must be carried out in accordance with the Emergency Management Plan. The preparation of this “Legionellosis Response Protocol for Public Health Units” fulfils the preparedness role as the Emergency Management Plan is embodied in the Protocol. Specific roles and responsibilities for preparedness are:

Communicable Diseases Branch
- Develop a case investigation protocol

Environmental Health Branch
- Provide policy direction and advice in regard to the NSW Public Health Act, 1991, and Public Health (Microbial Control) Regulation 2000 as applicable to Legionnaires' disease outbreaks.
- Develop forms and other documents for use in the control of outbreaks.

Public Health Unit
- Establish effective and rapid communication networks with hospital and community-based clinical staff, including general practitioners, emergency departments, intensive care units, respiratory physicians local infectious disease physicians and laboratory personnel.
- Develop and implement Area Legionnaires' disease management protocols.
- Maintain an outbreak investigation kit (Annex 1).
- Maintain Liaison with local councils.
- Authorise Environmental Health Officers generally and be prepared to authorise local Council Environmental Health Officers for outbreak investigation purposes. A draft “Certificate of Authorisation” may be found at (Annex 2).
- Conduct exercises to test this outbreak protocol.
- Monitor compliance rates of water-cooling systems in NSW Health, health care facilities

Local Council
- Maintain register of water-cooling systems in accordance with the Regulation.
- Maintain a local council contact list (Annex 3).
- Develop a local council Legionella Management Plan.
- Maintain an outbreak investigation kit (Annex 1).
- Participate in local exercises.
- Authorise council Environmental Health Officers.
Monitor compliance rates in water-cooling systems.

2. Response

**Communicable Diseases Branch**

In a state-wide outbreak:
- convene a Legionnaires’ disease outbreak panel and establish a meeting schedule (if required). The panel may include members from the public health unit, Environmental Health Branch, Division of Analytical Laboratories (DAL), and other experts as required.
- Activate surveillance systems and check functionality of routine surveillance systems.
- Ensure internal communications arrangements are in place, in case there is a need to activate HealthPlan, including the Chief Health Officer; NSW HSFAC; Director, Counter Disaster Unit; State Public Health Controller; State Health Communications Controller; and Director, Centre for Epidemiology & Research.
- Alert healthcare providers through previously agreed channels.

**Public Health Unit**

In a local cluster:
- Maintain liaison with laboratory services and DAL.
- Ensure surveillance systems and associated IT systems are in place and fully functional.
- Interview cases/carers according to section 9 using the Legionnaires’ Disease Investigation Form (Appendix 1).
- Investigate possible sources of infection and initiate actions according to sections 10 and 12.
- Notifying the local media manager (who should contact the NSW Health Media Branch).
- Establish a Public Health Unit Outbreak Co-ordination Centre.
- Establish finance systems (eg unique account codes) for tracking expenditure as deemed necessary.
- Maintain an after hours contact list of the most senior EHO in each local council.
- Assess the adequacy of resources and if necessary investigation and obtain additional resources from local councils or neighbouring PHUs if necessary.

In assessing WCSs:
- Water should be sampled and submitted according to Annexes 4 and 5 with the relevant forms (Annexes 6, 7 and 8). Positive samples should be held by DAL and matched against any human isolates.
- Implicated WCS should be inspected using the “Premises Inspection Report” form (Annex 9).
- WCS should be cleaned and disinfected in accordance with Annex 12 if there has been non-compliance with any item so indicated on the “Premises Inspection Report” (Annex 9).
- WCS that were sampled during the inspection are to be cleaned and disinfected in accordance with Annex 12 as required by the failure criteria expressed in the “Premises Inspection Report.” (Annex 9)
- Those WCS that required cleaning and disinfection should be re-evaluated by the PHU within two weeks but not within one week of cleaning or disinfection.
- Where the investigation identifies unregistered WCS or warm-water systems feedback to the local council should be provided.
- Where a spa pool is implicated, the pool water should the sampled and the filter swabbed for *Legionella* and the spa pool then cleaned and disinfected in accordance with Annex 9.
- Where a warm water system (WWS) is implicated it should be assessed using the audit tool [Annex 10, see: http://www.health.nsw.gov.au/public-health/ehb/general/microbial/wws_om_audit_tool.pdf] and clean and disinfected using Annex 12 if the system is a tepid water storage tank system or if the WWS is a Thermostatic Mixing Valve then follow the TMV Code of Practice.
• Where a fountain is implicated it should be sampled and disinfected to 5 mg/L of free chlorine at a pH in the range of 7.0 to 7.6, for 30 minutes circulation.

• As part of any environmental investigation an “Order to Maintain a Water Cooling System” pursuant to Clause 14 (2) of the Public Health (Microbial Control) Regulation, 2000 can be issued by the inspecting EHO (Annex 11).

• Legal proceedings should be contemplated for blatant breaches of the Public Health Act and the Prosecution Manual should be followed for this purpose;

• Ensure that all EHOs (from the PHU or local council) are appropriately authorised pursuant to the Public Health Act. A draft Certificate of Authority is available from the Environmental Health Branch (Annex 2).

Health Communications
• Develop press release templates, FAQs and materials for uploading on the NSW Health Internet.

3. Recovery
Communicable Diseases Branch
Following a state-wide outbreak:
• Review lessons learnt with relevant NSW Health and PHU Staff.
• Review the Legionellosis Response Protocol for NSW Public Health Units in view of lessons learnt.

Public Health Unit
Following a local cluster:
• Conduct debriefings as appropriate.
• Review Area Legionnaires Disease Emergency Management Protocol in view of the outbreak debriefing.

Workforce Education and Training
Training should be developed and conducted by PHUs to give effect to this protocol for the major groups involved in the epidemiological and environmental investigations. For further information on environmental control of Legionella contamination see: http://www.health.nsw.gov.au/public-health/ehb/general/microbial/microbial.html.
Annex 1

SUGGESTED FIELD INVESTIGATION KIT

- 250mL Sterile Bacteriological Water Sample Bottles - with thiosulphate added
- Thermometer
- Lovibond Comparator capable of testing for bromine, chlorine and pH
- Personal Protective equipment (See AS 3666-1990: respirator, disposable overalls)
- Torch and spare batteries
- Car refrigerator and polystyrene 6-pack coolers and ice bricks
- Communication equipment (Portable telephone; charger)
- 3-4m Ladder and access to larger ladders
- Roof Racks and octopus straps
- Note book, forms, orders, folders, sample submission cards and other stationary
- Screw drivers (slot and phillips head), pliers and shifting spanners
- Digital camera
- Cooling tower database and maps, and street directory.
CERTIFICATE OF AUTHORITY

…………………………………………, whose signature appears below is hereby appointed as an “authorised officer” under Section 44 of the Public Health Act, 1991.

The officer is authorised to enter any premises within the ………………………….. Area Health Service at any time, and to inspect, require the production of any records kept in relation to any regulated systems, and take samples for purposes of analysis from any regulated systems pursuant to the Public Health Act, 1991 and the Public Health (Microbial Control) Regulation, 2000.

Any action set out in an order signed by the abovementioned officer is to be considered a prescribed maintenance requirement pursuant to Clause 14 (3) of the Public Health (Microbial Control) Regulation, 2000 and shall be carried out within the time specified in the order.

Failure to comply with any such order will render the owner and / or occupier of the premises specified in the order liable to prosecution.

Obstruction of the Officer is punishable by a fine of up to $5500.

The authorisation is valid for a period of ……….. days from the date of issue.

Signed …………………………………….

Medical Officer of Health
Date: .................................

Signed …………………………………….

Authorised Officer
Date: .................................
Legionella Outbreak Council Contact List and after hours details

All authorised EHOs in council
Most senior authorised EHO for each neighbouring local council
Executive Director / General Manager
Mayor
Public Health Unit Director
Public Health Unit Senior EHO

This list should be updated annually
Sampling and Transport Procedure

1. Sampling Locations

1.1 WATER COOLING SYSTEMS (cooling towers and evaporative condensers): take duplicate bacteriological samples from the sump water when the water cooling system has been turned off, and if this is not practical then from the circulating water. NOTE: Only one of the duplicate bacteriological samples is to be forwarded and the other is to be retained by the sampling person.

1.2 EVAPORATIVE COOLING SYSTEMS (evaporative coolers): take duplicate bacteriological samples from the sump water when the evaporative cooling system has been turned off, and if this is not practical then from circulating water. NOTE: Only one of the duplicate bacteriological samples is to be forwarded and the other is to be retained by the sampling person.

1.3 WARM WATER SYSTEMS Take a total of three duplicate bacteriological sample sets; one sample set is to be taken from the closest outlet fixture, one sample set from the furthest outlet fixture and one sample set from any storage tanks or vessels not being a sludge sample. NOTE: Only one of the duplicate bacteriological samples is to be forwarded and the other is to be retained by the sampling person.

1.4 SPA POOLS A total of two duplicate bacteriological samples are to be taken: one sample set to be taken from the water in the spa pool and one sample set from the filter media or backwash water. NOTE: Only one of the duplicate bacteriological samples is to be forwarded and the other is to be retained by the sampling person.

1.5 SHOWER ROSE One duplicate sample is to be taken from the shower rose which should be sampled preferably at the start of the day and not within four hours of a hot shower usage. The first flush from the rose is required. NOTE: Only one of the duplicate bacteriological samples is to be forwarded and the other is to be retained by the sampling person.

1.6 HOSES AND SOAKER HOSES Duplicate samples are to be taken from hoses and soaker hoses if it was suspected that they were used during the incubation period and where they may have been left in the sun or able to promote the growth of microbes. NOTE: Only one of the duplicate bacteriological samples is to be forwarded and the other is to be retained by the sampling person.

1.7 POTTING MIX Duplicate samples (still using 250mL bacteriological sample bottles) are to be taken from potting mix if had been used during the incubation period. An aseptic technique is to be used to scoop the potting mix directly into the sample container using new spatula for each sample. NOTE: Only one of the duplicate bacteriological samples is to be forwarded and the other is to be retained by the sampling person.

2. SAMPLING PROCEDURE AND TRANSPORTATION

Duplicate bacteriological samples, each of 250mL volume, must be taken during any investigation of Legionnaires’ disease. Only one sample is to be sent to Division of Analytical Laboratories (DAL). The second is to be kept until receipt has been verified by Division of Analytical Laboratories. The duplicate sample must be refrigerated at 4°C to 10°C. Bacteriological samples are to be transported in a polystyrene six pack with ice bricks, unless delivered personally to DAL where a pre-chilled car refrigerator should be used.

Correct personal protective equipment must be worn when sampling from suspected equipment (see AS/NZS 3666). Special care must be taken against injury from chemicals and sharp objects. Where there is the possibility of aerosols being generated then the equipment should be switched off before sampling.

In the collection of samples for microbiological examination, the sample should be “representative” of the water being examined. Care must be taken to avoid accidental contamination of the sample during collection. The sampling bottle should be kept unopened until it is required for filling. During sampling, the stopper or screw cap and neck of the bottle should not be allowed to touch anything that may contaminate the sample. The bottle should be held in one hand by its base while the stopper or screw cap is retained in the other hand. The bottle should not be rinsed before sampling. The bacteriological sample must be taken by plunging the mouth of the
sample container into the water body to minimise surface contamination (unless a sample of the recirculating water is taken) and the stopper or screw cap replaced immediately. An air gap of about 20mm should be left in the sample bottle to ensure mixing during transportation. Label the container immediately after or immediately before sampling. Where several different types of samples are being collected on the same occasion from the same source, the sample for microbiological examination should be collected first, in order to avoid the danger of contamination of the sampling point during the collection of the other samples.

If samples of water disinfected with chlorine or bromine are taken, the process, type of disinfectant, and the level of residual disinfectant present at the sampling point at the time of sampling should be determined where time permits such a thorough investigation.

*Changes occur in the bacterial content of water samples on storage and it is important, therefore, that the samples should be examined as soon as possible after collection. Examination should preferably be started within 24 hours of collection of the sample, but the interval between collection and the beginning of examination should not exceed 48 hours.*

3 SAMPLE SUBMISSIONS

In all cases two forms need to be completed for each sample:

- 3.1 Microbiological Analysis of Samples for *Legionella* (from DAL – Appendix 7); and
- 3.1 Data Sheet (Appendix 8)

4 DELIVERY

Samples taken by Council EHOs should be submitted for examination after prior consultation with the Public Health Unit. The Public Health Unit should consult microbiologists from the Division of Analytical Laboratories on telephone (02) 646 0425 on their timing to accept samples.

Address specimens to:

- Attention: *Legionella* Laboratory
- Division of Analytical Laboratories
- Lidcombe Hospital
- Joseph Street
- (480 Weeroona Rd Entrance)
- **LIDCOMBE NSW 2141**

Where samples are delivered personally they should be taken to sample reception located in the rear basement of the Division of Analytical Laboratories.
How do I collect a Legionella water sample?

Sample Container
- Use a leak-proof sterile container.
- For chlorinated samples use a sterile jar containing sodium thiosulphate.

Collecting the Sample
- Use aseptic technique.
- Do not rinse the container before taking the sample.
- A minimum volume of 100mL is required.
- Do not completely fill container, to facilitate thorough mixing of sample.

Warm Water System
- Disinfect tap.
- Run water for 2-3 minutes.
- Reduce water flow to avoid splashing.
- Collect sample.

Cooling Towers and Evaporative Coolers
- Wear protective equipment (such as gloves, mask).
- Avoid collection of sludge or other debris.
- Collect sample far from fresh water make up outlet and/or chemical treatment outlet.

Sampling from:
- Tap attached to basin: run tap for at least 30 seconds prior to sampling.
- Sump: Insert the container facing downwards below the water surface and collect sample with a scooping motion, avoiding contact with any surfaces.

Label/Form
- Record sample details clearly on the container, and complete a DAL 'Microbiological Analysis of Samples for Legionella' submission form, following instructions on the form.

Transporting Samples to the Laboratory
- Pack the samples into an insulated container together with sufficient freezer bricks to keep the samples between 2-10°C during transportation.
- Mark the container “Urgent Water Samples for Legionella Testing” and dispatch to the laboratory. (See over leaf).
- All samples must reach DAL within 24 hours of collection.

Further information is available by contacting the: Legionella Reference Laboratory
Ph: (02) 9646 0425 or (02) 9646 0321
Fax: (02) 9646 0204
Email: asmith@dal.wsahs.nsw.gov.au
Legionella Testing in Water Samples

<table>
<thead>
<tr>
<th>Summary of service the Division of Analytical Laboratories (DAL) will provide in testing Legionella in water samples.</th>
<th>DAL will test water samples for the presence and enumeration of Legionella. In the event of positive results DAL will inform clients via phone or fax as soon as positive results are obtained. All results are reported to clients in writing. Instructions on how to take samples and how they should be delivered to the laboratory are provided overleaf.</th>
</tr>
</thead>
<tbody>
<tr>
<td>What clients need to do</td>
<td>Clients need to nominate a “Legionella Coordinator” through whom all communications between client and DAL will take place. Clients need to contact the Legionella Laboratory prior to submitting samples.</td>
</tr>
<tr>
<td>Price of the Service</td>
<td>Price on request. Contact Anna Smith, Legionella Reference Laboratory. Ph: 9646 0425 Email <a href="mailto:asmith@dal.waahs.nsw.gov.au">asmith@dal.waahs.nsw.gov.au</a></td>
</tr>
</tbody>
</table>

Where do I send samples for Legionella Testing?

**URGENT WATER SAMPLES FOR LEGIONELLA TESTING**

**Delivery Address:**
Division of Analytical Laboratories
Joseph St (entrance at 480 Weeroona Rd)
Lidcombe NSW 2141

**FRAGILE**
**MICROBIOLOGICAL ANALYSIS OF SAMPLES FOR LEGIONELLA**

**SUBURB OR TOWN:**

**DATE SAMPLES COLLECTED:**

**REASON FOR SUBMISSION:**
- Fee for Service
- NSW PHU Legionella Sampling Program
- Legionella Case / Outbreak Investigation
- Other:

**SUBMITTING AUTHORITY/HEALTH CARE FACILITY:**

**REGISTER NO.:**

**DETAILS OF SAMPLES:**

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>LOCATION (e.g. Hospital Name if different from submitting authority)</th>
<th>SAMPLE I.D. / REFERENCE NO.</th>
<th>Sampling Point*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>A B C</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>A B C</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>A B C</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>A B C</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>A B C</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>A B C</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>A B C</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>A B C</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>A B C</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>A B C</td>
<td></td>
</tr>
</tbody>
</table>

*Sampling Point: A = COOLING TOWER  B = WARM WATER SYSTEM / TMI  C = OTHER..............................

**Contact Name:**

**Telephone No.:**

**STD Code:** 02

**Fax No.:**

**STD Code:** 02

---

**LABORATORY USE ONLY:**

**DATE SAMPLES RECEIVED:**

<table>
<thead>
<tr>
<th>Presumptive</th>
<th>Date</th>
<th>By</th>
<th>To</th>
<th>Result</th>
<th>Date</th>
<th>By</th>
<th>To</th>
</tr>
</thead>
</table>

**Date Report Dispatched:**.................................

---

**Form No.: L.37**

**Date of Issue:** March 2006

**Authorised by:** A. Smith
DATA SHEET FOR SAMPLE COLLECTIONS FROM WATER COOLING SYSTEMS OR WARM WATER SYSTEMS
To be filled out at time of inspection Card No.: (   ) DAL use only

Site Location: ___________________________________________________

Time of Sampling: ________AM/PM  Date: ___/___/___  Sample No.: (   )

A. FOR WATER-COOLING SYSTEMS ONLY + C.

Tower Type: Cooling Tower  Evaporation Condenser

Brand: _________________________  Model No: _________________________

Unit Condition: Clean  Fair  Dirty

Wall Slime:  Absent  Present  Extensive

Biocide Used: (name) _______________________________________________

Dosing Interval:__________________________________________________

B. FOR WARM-WATER STORAGE SYSTEMS ONLY + C.

System Type:
Mixing Valve  Open Tank  Tepid Tank  Solar Heater
Calorifier  Other  →  Specify______________

Brand: _____________________    Model:  _____________________________

Water Supply Chlorinated / Chloraminated:  Yes / No

Water Temperature: _______ ºC    Water pH: _______

C. FOR WATER COOLING SYSTEMS AND WARM WATER SYSTEMS

Water Turbidity:  Absent  Present  Extensive

Date Last Emptied: __/____/____  Date Last Cleaned: ___/_____/______

Other Comments: __________________________________________________

_________________________________________________________________

EHO Name:  ________________________   Contact No: (_ __)____________

Signature: ________________________   Date: ____/__ _______/________
Annex 8

DATA SHEET FOR SAMPLE COLLECTIONS FROM SPA POOLS, DOMESTIC WATER SAMPLES OR POTTING MIX
To be filled out at time of inspection  Card No.: (     ) DAL use only

Site Location: ____________________________________________________

Time of Sampling: __________ AM/PM Date: ___/___/___  SAMPLE NO.: (     )

FOR SPA POOLS ONLY

Temperature: ___ºC    pH ____  Free Chlorine / Bromine ________ mg/L

Type of Filter: _____________________________________________________

Backwashing Frequency _____________ per week

Draining Frequency __________________ per week / month

Date Spa Last Emptied ____/_____/_____

Who Maintains Spa? ________________________________________________

FOR DOMESTIC WATER SAMPLES ONLY

TYPE OF SAMPLE:

Shower rose  □  Garden hose  □  Soaker hose  □
Spray irrigation kit  □  Fountain  □

Date and/or time last used: _____/_____/________          ______AM/PM

FOR POTTING MIX DATA SAMPLES ONLY

Type of Sample:  Potting mix □  Soil □  Compost □

Date Purchased: ___/___/___ Date First Opened (If packaged): ___/___/___

Other Comments:
__________________________________________________________________
__________________________________________________________________

EHO Name: _________________  Contact No: (__)____________

Signature: _________________  Date: ______/______/____
Premises Inspection Report
(for Legionnaires’ Disease outbreak purposes only)

Date of Inspection…………………………   Time…………….. (AM / PM)

Name of Premises………………………………  Person Interviewed………………….

Address of Premises…………………………………………………………………………

Owner / Occupier………………………………   Address………………………………..

Contractor……………………………………………………………………………………….

Water Cooling System Details: Number of WCS……………………..............
(If more than one attach another inspection report)

Model…………………………………….. Location……………………………………

Identification No………………………..   WCS in Operation? Yes / No

Log Book on site? Yes / No A   Current?   Yes / No B

Date of Last Inspection…./…./….   Months since last inspection………………..

Date of Last Clean…./…./….   Months since last clean………………… C

Date of Last Sample…./…./….   TPC……………….   Tot Leg ……… …… D, E

Disinfection System: Present? Yes / No F   Biocide Type………………………………

Certification Current? Yes / No G   By Whom? ………………………………… H

Visual Inspection Criteria: I

Visual Cleanliness: Clean   Fair   Dirty
Water Turbidity: Absent   Present   Excessive
Wall Slime: Absent   Present   Excessive
Sludge: Absent   Present   Excessive
General Repair: Good   Fair   Poor
Access: Good   Fair   Poor

Location of Sampling Point ………………………………………………………………………

Comments……………………………………………………………………………………..

Action…………………………………………………………………………………………

Sampled? Yes / No   Result: Total Legionella: ……………….. cfu/mL
                     Legionella pneumophila: ………….. cfu/mL

EHO Name: ………………………….. Signature: ………………………. 
## Failure Criteria:

<table>
<thead>
<tr>
<th>Notation</th>
<th>Failure Criteria</th>
<th>Action</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Log Book not on site</td>
<td>Order closure, clean and disinfect, only re-open when log book is on-site and current</td>
<td>1</td>
</tr>
<tr>
<td>B</td>
<td>Log Book not current</td>
<td>Order closure, clean and disinfect, only re-open when log book is current</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>&gt; 3 months since last clean</td>
<td>Clean and disinfect</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>TPC &gt; 10$^3$ or TL &gt; 100</td>
<td>Clean and disinfect</td>
<td>2</td>
</tr>
<tr>
<td>E</td>
<td>TL &gt; 10</td>
<td>Re-evaluate disinfection system</td>
<td>No order</td>
</tr>
<tr>
<td>F</td>
<td>No disinfection System</td>
<td>Order closure, clean and disinfect, only re-open when disinfection system installed, certified and operating</td>
<td>3</td>
</tr>
<tr>
<td>G</td>
<td>No disinfection system certificate</td>
<td>Order closure, clean and disinfect, only re-open when disinfection system installed, certified and operating</td>
<td>3</td>
</tr>
<tr>
<td>H</td>
<td>Disinfection certificate not competent person</td>
<td>Order closure, clean and disinfect, only re-open when disinfection system installed, certified and operating</td>
<td>3</td>
</tr>
<tr>
<td>I</td>
<td>Fail one or more inspection criteria</td>
<td>Clean and disinfect</td>
<td>2</td>
</tr>
</tbody>
</table>
Warm Water System – *Operation and Maintenance* Audit Tool

Public Health (Microbial Control) Regulation 2000, Clauses 9, 10 & 11 and AS/NZS 3666.2:2002

Council: __________________________________________

**A  PREMISES DETAILS:**

Premises Name: __________________________

Address:_______________________ Suburb: _______________ Postcode: _____

Owner Name: __________________  Occupier Name: ________________________

WWS Identification: Model: ______________ SN: _________________________

WWS Location on Site: ______________________________________________________

Registration Number: ____________  Registration Details complete?  □ Yes □ No

Registration details match with above? □ Yes □ No

Commissioning Date: _____/_____/_______

Number of other WWS on site? ______________________________

**B  AUDIT DETAILS**

- Type of WWS  □ Tepid □ TMV
- Measured temperature of operation < 60°C? □ Yes □ No
- Nominated temperature of operation. 40.5°C / 43.5°C / >43.5°C / ______°C

**Compliance with Section 45 of the Public Health Act**

- Is O&M carried out by a contractor? (S45.3) □ Yes □ No
- Contractor details: _______________________________________________________
- Is the contractor reasonably expected to be competent? □ Yes □ No
Warm Water System – *Operation and Maintenance* Audit Tool  
Public Health (Microbial Control) Regulation 2000, Clauses 9, 10 & 11 and AS/NZS 3666.2:2002

### Compliance with Clause 9 Public Health (Microbial Control) Regulation - Operation

- Operation manual provided on site? □ Yes □ No
- Maintenance manual provided on site? □ Yes □ No
- Manuals comply with AS/NZS 3666.2:2002? (Reg Cl 8(b))
  (Drawings, suppliers recommendations, cleaning and dismantling instructions, start up and shut down procedures, maintenance management program) □ Yes □ No
- Maintenance records up to date □ Yes □ No
- And on site? □ Yes □ No
- Equipped with a process to control microbial growth? (optional) □ Yes □ No

### Compliance with Clause 10 Public Health (Microbial Control) Regulation

- Are maintenance precautions being observed when maintenance is being carried out? □ Yes □ No □ NA

### Compliance with Clause 11 Public Health (Microbial Control) Regulation  
(AS/NZS3666.2:2002)

- Has the water storage tank (tepid system) been cleaned in the past 12 months? □ Yes □ No

### Compliance with Clause 13 Public Health (Microbial Control) Regulation → NSW Health Circular “Requirements for the Provision of Cold and Heated Water”

- Monthly temperature check? □ Yes □ No
- Temperatures and colour codes comply? □ Yes □ No
- If the WWS is a TMV has a service report in accordance with the TMV Code of Practice been completed? □ Yes □ No
- Has the TMV service interval exceeded 12 months? □ Yes □ No

C RECOMMENDATIONS:

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

Environmental Health Officer: ________________________  
Signature: __________________________  
Date:   ___ / ___ / ___
ORDERS – Generic

Three generic Orders have been developed for use under the provisions of Clause 14(2), Public Health (Microbial Control) Regulation, 2000. They are only to be used by a duly authorised officer (as defined under section 44 of the Act), employed by the local authority or Area Health Service investigating an occurrence of Legionnaires’ disease. The Orders are not designed for use generally under section 48 as a notice of direction. The Order is served on the occupier of the regulated premises where a water-cooling system (a regulated system) is installed.

The generic Orders have been developed to assist in accelerating the investigation of an occurrence of Legionnaires’ disease by equipping Environmental Health Officers with a standardised Order format that can be carried by the EHO and completed on site. A duplicate Order must be kept for records.

There are three generic Orders for varying circumstances as established when a water-cooling system is inspected using the “Premises Inspection Report” Appendix 9 to the “Legionellosis Response Protocol for Public Health Units.” Depending on the circumstances found during the inspection a recommendation on the reverse of the Report indicates which Order should be used.

Order 1: For use where current logbooks need to be provided and therefore the water-cooling system needs to be shut down immediately. Once shut down the WCS then must be disinfected and cleaned, recommissioned and maintained in a clean condition; and of course the log books provided.

Order 2: For use when the WCT fails one or more inspection criteria or has not been cleaned and disinfected within three months of inspection or a sample has revealed a Total Plate Count exceeding 10^5 cfu/mL and/or Total Legionella exceeding 100 cfu/mL. The WCS can be cleaned, disinfected, and recommissioned without immediate shut down.

Order 3: For use where:
- There is no disinfection system installed on the WCS,
- There is no certification of the disinfection system, or
- The certificate of disinfection is not signed by a competent person.
the occupier is to immediately cease using the WCS a certified disinfection system designed to control microbial growth is installed and the WCS complies with clause 9(2) of the Regulation.

The generic Orders are in MS Word format so that they may be altered for other circumstances or Area Health Service use.
ORDER TO MAINTAIN A WATER-COOLING SYSTEM

I, ____________________________________________________, an authorised officer within the meaning of Section 44, Public Health Act, 1991, being an Environmental Health Officer employed by the _________________________________ Council hereby orders ___________________________, as the occupier of premises _________________________________________________________ (a regulated premises) on which a water-cooling system (a regulated system) known as ________________________________ is installed, to maintain the water-cooling system in accordance with the following directions:

1. Cease using the water-cooling system immediately.

2. Provide a current logbook on-site.

3. Immediately clean and disinfect the water-cooling system as follows:
   - Circulate a dispersant.
   - Dose with sodium hypochlorite at a dose rate of about 400mL per 1000L (or calcium hypochlorite at a dose rate of about 80g per 1000L) to maintain 25-50 mg/L of free residual chlorine at pH 7.0 to 7.6 and circulate for 30 minutes.
   - Dechlorinate and drain to either (a) sewer in accordance with the sewerage authority’s requirements, or (b) where sewer is not available, disposable shall be in accordance with the requirements of the local authority.
   - Adopt cleaning procedure to thoroughly clean and rinse all wettable surfaces.
   - Refill.
   - Redose with sodium hypochlorite at a dose rate of about 40mL per 1000L total capacity of sump plus pipework (or calcium hypochlorite at a dose rate of 8g per 1000L total capacity of sump plus pipework) to maintain a 5 mg/L of free residual chlorine at pH 7.0 to 7.6 and circulate for 1 hour.
   - Recommission and reinstate full water treatment program.

4. Maintain the water-cooling system in a clean condition.

For the purposes of section 46 of the Public Health Act, 1991, the directions given in this order are prescribed maintenance requirements. To any extent that this Order is inconsistent with any provision of the Public Health (Microbial Control) Regulation 2000, this Order shall prevail. This Order has effect from ____ / ____/ 20___ to ___ / ___ / 20___ inclusive.

Signed ___________________ Date ________/______/___ ______
ORDER TO MAINTAIN A WATER COOLING SYSTEM

I, ____________________________________________________, an authorised officer within the meaning of Section 44, Public Health Act, 1991, being an Environmental Health Officer employed by the _________________________________ Council hereby orders ___________________________, as the occupier of premises __________________________________________________________ (a regulated premises) on which a water-cooling system (a regulated system) known as ________________________________ is installed, to maintain the water-cooling system in accordance with the following directions:

1. Immediately clean and disinfect the water-cooling system as follows:
   - Circulate a dispersant.
   - Dose with sodium hypochlorite at a dose rate of about 400mL per 1000L (or calcium hypochlorite at a dose rate of about 80g per 1000L) to maintain 25-50 mg/L of free residual chlorine at pH 7.0 to 7.6 and circulate for 30 minutes.
   - Dechlorinate and drain to either (a) sewer in accordance with the sewerage authority’s requirements, or (b) where sewer is not available, disposable shall be in accordance with the requirements of the local authority.
   - Adopt cleaning procedure to thoroughly clean and rinse all wettable surfaces.
   - Refill.
   - Redose with sodium hypochlorite at a dose rate of about 40mL per 1000L total capacity of sump plus pipework (or calcium hypochlorite at a dose rate of 8g per 1000L total capacity of sump plus pipework) to maintain a 5 mg/L of free residual chlorine at pH 7.0 to 7.6 and circulate for 1 hour.
   - Recommission and reinstate full water treatment program.

2. Advise the authorised officer when the above directions have been completed.

For the purposes of section 46 of the Public Health Act, 1991, the directions given in this Order are prescribed maintenance requirements. To any extent that this Order is inconsistent with any provision of the Public Health (Microbial Control) Regulation 2000, this Order shall prevail. This Order has effect from ____ / ____/ 20__ to ___ / ___ / 20___ inclusive.

Signed ___________________ Date ________/______/___ ______
ORDER TO MAINTAIN A WATER COOLING SYSTEM

I, ____________________________________________________, an authorised officer within the meaning of Section 44, Public Health Act, 1991, being an Environmental Health Officer employed by the ________________________________ Council hereby orders ___________________________, as the occupier of premises __________________________________________________________ (a regulated premises) on which a water-cooling system (a regulated system) known as ________________________________ is installed, to maintain the water-cooling system in accordance with the following directions:

1. Cease using the water-cooling system immediately.

2. Immediately comply with clause 9(2), Public Health (Microbial Control) Regulation, 2000. (printed on the back of this Order)

3. After complying with 2 above, disinfect the water-cooling system as follows:
   - Circulate a dispersant.
   - Dose with sodium hypochlorite at a dose rate of about 400mL per 1000L (or calcium hypochlorite at a dose rate of about 80g per 1000L) to maintain 25-50 mg/L of free residual chlorine at pH 7.0 to 7.6 and circulate for 30 minutes.
   - Dechlorinate and drain to either (a) sewer in accordance with the sewerage authority’s requirements, or (b) where sewer is not available, disposable shall be in accordance with the requirements of the local authority.
   - Adopt cleaning procedure to thoroughly clean and rinse all wettable surfaces.
   - Refill.
   - Redose with sodium hypochlorite at a dose rate of about 40mL per 1000L total capacity of sump plus pipework (or calcium hypochlorite at a dose rate of 8g per 1000L total capacity of sump plus pipework) to maintain a 5 mg/L of free residual chlorine at pH 7.0 to 7.6 and circulate for 1 hour.
   - Recommission and reinstate full water treatment program.

4. Advise the authorised officer when action 2 has been completed.

For the purposes of section 46 of the Public Health Act, 1991, the directions given in this Order are prescribed maintenance requirements. To any extent that this Order is inconsistent with any provision of the Public Health (Microbial Control) Regulation 2000, this Order shall prevail. This Order has effect from ____ / ____/ 20___ to ___ / ___ / 20___ inclusive.

Signed ___________________ Date ________/______/___ ______
Public Health (Microbial Control) Regulation 2000

9 General operating requirements

(1) For the purposes of section 46 of the Act, the prescribed operating requirements for a regulated system are that the regulated system must be operated as required by AS/NZS 3666.2: 2002 *Air-handling and water systems of buildings—Microbial control—Operation and maintenance.*

(2) For the purposes of section 46 of the Act, the additional prescribed operating requirements for a water cooling system are that the system must be equipped with a process designed to control microbial growth and that process:

(a) must be in operation at all times, and
(b) must be certified by a competent person annually as being an effective process of disinfection under the range of operating conditions that could ordinarily be expected, and
(c) must be sufficiently effective so that:
   (i) no sample taken from the system subjected to a test for total *Legionella* numbers in accordance with the relevant Australian Standard has a level of *Legionella* of more than 10 colony-forming units per millilitre, or
   (ii) no sample taken from the system subjected to a test for heterotrophic plate count in accordance with the relevant Australian Standard has a heterotrophic plate count of more than 100,000 colony-forming units per millilitre, and
(d) must be supplemented by remedial action taken by a competent person after any test where a level set out in paragraph (c) (i) or (ii) is exceeded.

(3) For the purposes of subclause (2), a reference to a competent person is a reference to a person who is a tertiary qualified chemist, chemical engineer, engineer or microbiologist and who has expertise in the relevant field.
CLEANING AND DISINFECTION PROCEDURES

1  Emergency Decontamination Procedure For Cooling Water Systems

- Circulate a dispersant.
- Dose with sodium hypochlorite at a dose rate of about 400mL per 1000L (or calcium hypochlorite at a dose rate of about 80g per 1000L) to maintain 25-50 mg/L of free residual chlorine at pH 7.0 to 7.6 and circulate for 30 minutes.
- De-chlorinate and drain to either (a) sewer in accordance with the sewerage authority’s requirements, or (b) where sewer is not available, disposable shall be in accordance with the requirements of the local authority.
- Adopt cleaning procedure to thoroughly clean and rinse all wettable surfaces.
- Refill.
- Re-dose with sodium hypochlorite at a dose rate of about 40mL per 1000L total capacity of sump plus pipe work (or calcium hypochlorite at a dose rate of 8g per 1000L total capacity of sump plus pipe work) to maintain a 5 mg/L of free residual chlorine at pH 7.0 to 7.6 and circulate for 1 hour.
- Recommission and reinstate full water treatment program.

2  Emergency Decontamination Procedure For Warm Water Storage Tank Systems

- Dose with sodium hypochlorite at a dose rate of about 400mL per 1000L (or calcium hypochlorite at a dose rate of about 80g per 1000L) to maintain 25-50 mg/L of free residual chlorine at pH 7.0 to 7.6 for 30 minutes.
- Drain to either (a) sewer, or (b) where sewer is not available, disposable shall be in accordance with the requirements of the local authority or other relevant authority.
- Thoroughly clean all wettable surfaces, flush and refill.
- Re-dose with sodium hypochlorite at a dose rate of about 40mL per 1000L total capacity of sump plus pipe work (or calcium hypochlorite at a dose rate of 8g per 1000L total capacity of sump plus pipe work) to maintain a 5 mg/L of free residual chlorine at pH 7.0 to 7.6 for 1 hour.
- Drain and refill.
- Recommission and reinstate full water treatment program.

3  Emergency Decontamination Procedures For Spa Pools

- Backwash sand filter, replace cartridge filter or diatomaceous earth.
- Adjust the pH to between 7.0 and 7.6 and introduce sufficient disinfectant to produce a free chlorine residual of 10 mg/L or a bromine equivalent of 20 mg/L and circulate water for 60 minutes.
- Backwash sand filter only.
- Check concentrations of pH, reserve alkalinity, and combined residual chlorine for compliance with NSW Health Department Guidelines. Adjust as necessary.
- Recommission and reinstate full water treatment program.