

# **Legionnaires' Disease:**

Managing the Health Risk Associated with  
Cooling Towers

**Findings and Recommendations of the  
Department of Human Services  
Legionella Working Party**

**Chair: Associate Professor C. Fairley**

**June 2000**

## **Acknowledgments**

*Legionnaires' Disease: Managing the Health Risk Associated with Cooling Towers.*

*Findings and Recommendations of the Department of Human Services, Legionnella Working Party.*

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# 1. Recommendations

The following recommendations have the support of the Legionella Working Party, which included representatives of industry through the Victorian Employers' Chamber of Commerce and Industry; local government through the Municipal Association of Victoria and the cities of Melbourne, Hobsons Bay and Whittlesea; environmental health officers through the Australian Institute of Environmental Health (Victorian Division); the Department of Human Services, Victorian WorkCover Authority and the Plumbing Industry Commission.

The recommendations have been provided in an order which builds from what is currently in place.

The Legionella Working Party recommends to the Minister the following strategies:

- (i) That regulation of cooling towers and warm water systems be continued and upgraded to include improved levels of maintenance and enhanced standards of practice.
- (ii) That improved and formalised partnership arrangements be introduced between agencies, including the Department of Human Services, local government, Victorian WorkCover Authority, Building Control Commission and Plumbing Industry Commission.
- (iii) That ongoing *Legionella* control education programs be provided jointly by these agencies.
- (iv) That compulsory registration of cooling towers be required by the Department of Human Services in consultation with other agencies.
- (v) That an ongoing program of inspections or audits be introduced and undertaken by authorised agencies.
- (vi) That the revenue raised by registration would fund the development and administration of the register and the inspection/audit process.

The Legionella Working Party endorses the following actions within a strengthened regulatory framework.

- (i) Establish a comprehensive register of cooling towers, as part of a risk management strategy, under the Building Control Commission as a component of the existing buildings surveillance systems.
- (ii) Require all registered premises to develop and implement risk management programs for the control of *Legionella*. Actions required under the programs to be documented and detailed in the *Annual Essential Services Report*, currently required by the Building Control Commission, which should be available for review by accredited inspectors.
- (iii) Require audits of risk management programs for the control of *Legionella* of all registered premises on a regular basis, funded by industry, as a component of the existing Building Control Commission requirement for an audit of the *Annual Essential Services Report*.
- (iv) Provide for inspections to be undertaken by government on the basis of risk to the community as well as through information received through audit or to assist in outbreak investigation.
- (v) Provide an enhanced technical advisory and outbreak investigation service for the control of *Legionella* through the Department of Human Services.
- (vi) Undertake cost recovery of recommendations (i), (iv) and (v) through registration fees payable by the registered premises to the Building Control Commission.

- (vii) Extend the requirements of the *Building Act 1993* and *Building Regulations 1994*, to enable the elements of the proposed approach to be actioned as quickly as possible for all buildings.
- (viii) Upgrade existing systems which do not meet the *Australian and New Zealand Standard AS/NZS 3666* to require fitting of drift eliminators and automated biocide dosing and automated bleed off systems to all cooling towers.

## 2. Benefits and Costs of Recommendations

### a. Benefits

The benefits of the working party's recommendations are outlined below:

**(i) That regulation of cooling towers and warm water systems be continued and upgraded to include improved levels of maintenance and enhanced standards of practice.**

(It is estimated that there are approximately 10,000 cooling towers in Victoria, and that currently most are properly maintained.)

- Improved levels of maintenance would further minimise the risks associated with cooling towers.
- The improved levels of maintenance would include upgraded Regulations and new Standards of Practice (refer to page 11).

(The detail of the upgraded Regulations and new Standards would be subject to regulatory impact procedures and Ministerial approval.)

**(ii) That improved and formalised partnership arrangements be introduced between agencies, including the Department of Human Services, local government, Victorian WorkCover Authority, Building Control Commission and Plumbing Industry Commission.**

- An enhanced partnership involving the five agencies would assist:
  - the investigation of cases of Legionnaires' disease;
  - the development and implementation of relevant ongoing education programs;
  - the registration of cooling towers;
- and
- the implementation of routine inspections and audits of cooling towers.
- These arrangements would result in higher levels of compliance and maintenance.

**(iii) That ongoing *Legionella* control education programs be provided jointly by these agencies.**

- Relevant ongoing education programs would:
  - increase awareness by installers, owners, operators, tenants, those servicing cooling towers, environmental health officers and others of the risks associated with cooling tower systems and appropriate control measures to achieve best practice, including an understanding of the Regulations, Standards of Practice and revised *Guidelines for the Control of Legionnaires' Disease*;

and

- assist with the introduction of consistent best practice surveillance standards and compliance arrangements.

**(iv) That compulsory registration of cooling towers be required by the Department of Human Services in consultation with other agencies.**

- A register would enable identification of cooling towers, which would:
  - improve investigation of sources linked to cases of Legionnaires' disease, and prevent outbreaks spreading further;
  - enable owners, operators, tenants and those servicing cooling towers to be targeted with information and education;

and

- enable auditing of cooling towers.
- Registration conditions could require *Legionella* safety and or risk management plans, or mandatory reporting of non-compliant results.
- Registration would introduce a revenue source to enable inspections/auditing of cooling towers to be funded on a user-pays basis.

- A State cooling tower register, maintained by the Department of Human Services or Building Control Commission, is a better option than local registers maintained by local government. The Department currently has expertise and involvement in both Legionnaires' disease and cooling towers, and a State cooling tower register:
  - would enable better coordination and response across municipal boundaries;
  - would provide statewide intelligence on locations of cooling towers;
  - would reduce the need for multiple programs of registration;
  - would improve research capacity into Legionnaires' disease;
  - is likely to be more efficient and use less resources;

and

- is likely to be more consistent and less fragmented.

**(v) That an ongoing program of inspections or audits be introduced and undertaken by authorised agencies.**

- An ongoing program of routine and/or random inspections and audits by authorised agencies would monitor and enforce best practice by industry in the maintenance of cooling towers.

The final recommendation of the working party was:

**(vi) That the revenue raised by registration would fund the development and administration of the register and the inspection/audit process.**

Registration fees of approximately \$122 per annum for the first cooling tower at each premises and \$82 for each additional cooling tower would enable recommendations (iv) and (v) to be implemented without cost to the authorised agencies, Department of Human Services and the State.

Prior to finalisation of the fee, however, it is proposed that a unit costing exercise and economic appraisal be undertaken.

**b. Costs**

For the first five years, the approximate annual costs of the working party's recommendations

Nos. (i) to (v) are:

Recommendation	Initiative	Cost *	Cumulative \$ Total *
(i)	Upgrading of Regulations	21,900	21,900
(ii) & (iii)	Formalised partnership and ongoing education	250,000	271,900
(iv)	Department of Human Services or Building Control Commission State register of cooling towers	213,333	485,233
(v)	Ongoing inspections/audits by authorised agencies	717,233	1,202,466

\* These figures include estimated registration fees, but do not include estimates of the additional testing, maintenance and upgrading. These costs would be borne by industry.

### 3. Background

Although Legionnaires' disease has been relatively rare, notifications under the Health (Infectious Diseases) Regulations 1990 have risen significantly in recent years.

Epidemic investigations implicate cooling towers and associated pipe systems, a proportion of which have been shown to not meet current best practice, and/or to be contaminated with the causative organism, *Legionella pneumophila* bacteria. Investigations indicate that improvements in maintenance are required, and that the minimum approach has often been shown to be inadequate.

The existing incidence and potential impact of Legionnaires' disease justify a review of the arrangements in place, including those of regulation and interagency cooperation, for the enforcement of best practice for maintenance of cooling towers.

For these reasons, the Legionella Working Party was established in December 1999 to advise the Minister on options for managing health risk associated with cooling towers.

The Legionella Working Party considered a range of feasible options for enforcement of best practice for maintenance of cooling towers, including the roles and responsibilities of agencies and associated costs and benefits associated with the feasible options.

The Terms of Reference of the working party were:

- To identify options, including those of regulation and interagency cooperation, for the enforcement of best practice for maintenance of cooling towers in Victoria to control the spread of Legionnaires' disease.
- To evaluate these options including roles and responsibilities of agencies and associated cost and benefits associated with feasible options.

and

- To provide the Minister for Health with a report on the above and with advice on the options identified.

The members of the working party were:

- Associate Professor Christopher Fairley, Department of Epidemiology and Preventive Medicine, Monash Medical School (Chair).
- Graeme Brennan, Chief Executive Officer, City of Whittlesea.
- Robert Brunton, Coordinator, Environmental Health Business Unit, Hobsons Bay City Council.
- Tim Burrows, Senior Consultant, Safety Health and Environment, Victorian Employers' Chamber of Commerce and Industry.
- Jenny Graham, Principal Officer - Health Services, City of Melbourne (attended final meeting on 5 May 2000).
- Clare Hargreaves, Senior Policy Advisor - Social Policy, Municipal Association of Victoria (attended meeting on 5 May 2000).
- Associate Professor William Hart, Assistant Director—Disease Control and Deputy Chief Health Officer, Department of Human Services (attended meeting on 5 May 2000).
- Michael Kefford, Commissioner, Plumbing Industry Commission.
- Michael Little, Manager—Prevention Policy and Research, Victorian WorkCover Authority.
- Andrew Mackintosh, State Councillor/Communicable Diseases and Immunisation Committee Convenor, Australian Institute of Environmental Health (Victorian Division).
- Dr Graham Rouch, Chief Health Officer, Department of Human Services.
- Russell Webster, Team Leader—Health Inspections, City of Melbourne.
- Jenny Wills, Director—Social and Cultural Policy, Municipal Association of Victoria.

The working party was assisted at some meetings by the following:

- Max Croxford, Commissioner, Building Control Commission.
- Bronwyn Northfield, Legal Officer, Maddock Lonie and Chisholm.
- Bobbie Novotny, Manager Corporate Strategies, Plumbing Industry Commission.
- Bill Pugh, USF Filtration (representing National Water Treatment Group).
- Jock Rankin, Executive Director, Property Council of Australia.

Legionellosis (infection by any *Legionella* species) is an acute bacterial infection which presents as:

(a) Pontiac fever, a short influenza-like illness lasting a few days.

or

(b) Legionnaires' disease, the severe pneumonic form of the illness.

*Legionella*, an environmental bacteria, can be found in high concentrations in warm water systems, such as cooling towers, unless sufficient treatment is applied. Infection is known to be acquired in susceptible persons through breathing in aerosols containing *Legionella* from these systems.

In Victoria, it is estimated that there are approximately 10,000 cooling towers. Their maintenance is regulated by the Health (Infectious Diseases) Regulations 1990, which incorporate the maintenance requirements of the *Guidelines for the Control of Legionnaires' Disease* (1989).

From 1991 to 1997, 20 to 40 cases of Legionnaires' disease were notified each year in Victoria, with deaths ranging from one to nine. In 1998, there were 68 notified cases with eight deaths and, in 1999, there were 64 cases with five deaths.

From 1 January to 16 May 2000, 164 cases were notified with six deaths. These figures include four outbreaks (Cobram 6/0, Melbourne CBD 6/0, Carlton 8/0 and the Melbourne Aquarium 97/2).

The increase in notifications is considered to be due mainly to greater public and clinical awareness, and to improved diagnostic methods. In Victoria, the fall in deaths from Legionnaires' disease, as a percentage of notified cases (from 50 per cent in 1982 to 8 per cent in 1999), is thought to be also due to the above.

Although relatively rare, Legionnaires' disease has been regarded as a public health priority because of its life-threatening nature and the potential for outbreaks, causing community concern and industrial disruption. There are also issues related to its potential for civil legal action and workers' compensation.

In 1979, Legionnaires' disease was proclaimed as a notifiable infectious disease in Victoria, requiring all cases to be notified to the then Health Department Victoria. This requirement has continued under the Health (Infectious Diseases) Regulations 1990.

The Regulations require the owner or any person who has the management or control of a cooling tower system to maintain the system and its associated equipment in accordance with the *Guidelines for the Control of Legionnaires' Disease* (hereafter referred to as the 'Guidelines'), issued by the Department. The current Guidelines, while requiring bacterial testing, do not specifically require testing for *Legionella*.

Incorporation of the Guidelines into the Regulations provided a basis for management and control of water systems, however, this has been less than effective as the Guidelines were written in a style intended to provide guidance only. No regulatory audit or inspection process was adopted to ensure that compliance became commonplace, although sites have been attended for inspection mainly following case notifications.

The current Regulations require that cases of Legionnaires' disease, including preliminary results, be notified to the Department of Human Services by rapid transmission, thereby placing an obligation on the Department to ensure that

every notified case is promptly followed up. This places considerable demands on Departmental resources when an outbreak occurs, or when there is a number of incidents. Currently, the Public Health Division can call on the skills of a small number of professional staff to manage outbreak investigation and control. However, this forms only part of the full range of duties which these staff are required to carry out.

The Department considers that many building owners and managers meet the requirements of the Regulations. There are regular examples of cooling towers maintained according to the Guidelines in which *Legionella* bacteria have been detected. This is an indication of how widespread the bacteria is, and how difficult it is to control, as it appears to be an opportunistic micro-organism. Industry is continuing to develop improved techniques for managing the problem.

The Public Health Division, in consultation with an industry committee, has drafted standards for maintenance, entitled *Standards of Practice for the Control of Legionellae in Water Systems*, to be incorporated in the proposed replacement Health (Infectious Diseases) Regulations. These Standards would replace the current Guidelines.

The new Standards are planned to impose higher standards of maintenance, and would encourage the use of modern cooling towers and dosing systems. The Standards would also require risk-based testing for *Legionella* bacteria, which is not currently the case.

Section 146 of the *Health Act 1958* provides that the Governor in Council may make regulations for or with respect to:

- (l) In the case of premises where infectious diseases may spread which are premises on which a business is conducted or to which the public has access -
  - (i) requirements to be observed by the proprietor of the business or person in charge of the premises including requirements as to -

- (A) the registration and cleanliness of the premises; and
- (B) the provision at the premises of information about infectious diseases; and
- (C) the general safeguarding of the health of persons likely to be using the premises.

Section 3 of the Act provides that:

‘premises’ includes messuages buildings lands and hereditaments of every tenure; and also any machinery plant appliance or vehicle used in connexion with any trade carried on at any premises.

It appears, therefore, that the Act provides for registration of plants or appliances, such as cooling towers, but that minor amendment may be required to the Regulations to specify cooling towers as plant or appliances, and relevant registration requirements, including fees.

It is proposed that legal advice be sought regarding legislative requirements for:

- (a) Registration of cooling towers.
- and
- (b) Inspections and/or audits of cooling towers by authorised agencies.

## 4. Existing Self-Regulation Arrangements

Under the existing arrangements, the Department, in consultation with industry groups, has developed Regulations and Guidelines, under which industry maintains cooling towers and associated equipment. Resources are not provided to monitor or audit cooling towers, or practices by industry. Under these arrangements, industry is largely self-managed and self-regulated.

Notified cases, clusters and outbreaks of Legionellosis/Legionnaires' disease are followed up by the Department of Human Services Communicable Diseases Section, and environmental investigations are carried out as required by the Department of Human Services Environmental Health Unit. On some occasions, officers on environmental investigations are accompanied by officers of the Victorian WorkCover Authority (VWA), the Department of Human Services Regional Environmental Health Officer and or local government environmental health officers.

Follow-up enquiries and environmental investigations of notified cases, clusters and outbreaks are carried out according to the Department of Human Services Disease Control Protocol. Environmental investigations usually include visits to the patients' homes, and other potential exposures, to identify, sample and arrange treatment of potential sources of *Legionella*.

Often the investigating officer does not know beforehand whether there are cooling towers in the area, or where they are located, so there is often a need to search for them.

The current arrangements often detect some high levels of bacteria and some non-compliant cooling tower systems. Environmental Health Unit officers who inspect cooling tower systems often provide immediate on-site advice and

guidance for systems to be rendered safe, upgraded and/or brought into compliance with the legislation.

Immediate recommendations by Environmental Health Unit officers may include:

- Slug dosing of cooling towers with a biocide.
- Reviewing the water treatment program, tower operation and maintenance program.
- Correcting any faults and implementing any necessary changes.
- Decontamination procedures, in accordance with instructions from the Chief Health Officer.
- Recommendations for systems improvement, if the systems investigated are found to be deficient.

and/or

- Conveying recommendations from the Communicable Diseases Section to management regarding workplace surveillance and advice to staff.

Environmental Health Unit officers contact the Victorian WorkCover Authority (where workplace issues exist) and inform local government of the investigation within its municipality.

Environmental Health Unit officers usually revisit the establishments until the cooling tower systems have been rendered safe as part of the normal follow-up procedure.

## 5. Common Themes from Consultation with Working Party Members

The following were recurring issues of concern, and issues about which there was general agreement during consultation and or discussion by the Legionella Working Party.

### a. Issues of concern

- (i) The increasing incidence of Legionnaires' disease.
  - Legionnaires' disease is regarded as a public health priority because of its life-threatening nature and the potential for outbreaks.
  - The number of notified cases of Legionnaires' disease in Victoria has risen significantly in recent years.
  - High proportions of notifications require hospitalisation and or admission to intensive care facilities.
  - Notifications of Legionnaires' disease are believed to significantly underestimate the actual incidence.
- (ii) Shortfalls in the existing arrangements.
  - The incorporation of the Guidelines into the Regulations has not worked optimally because the Guidelines were written in style intended to be advisory.
  - The Regulations are not reinforced by a regulatory inspection/audit process to ensure compliance.
  - The current Regulations do not require cleaning, chemical treatment and monitoring to be carried out by a specialist water treatment contractor.
  - The current Regulations do not require routine testing for the presence of *Legionella* in cooling tower systems.
  - When an outbreak occurs, or when there is a number of notifications, considerable demands are placed on very limited Departmental resources. A register of cooling towers would help to resolve the resource issue.
- The reference in the current Regulations to an authorised officer of the Department for inspection of records of maintenance infers that authorised officers of local government do not have a role in dealing locally with cooling tower issues.
- (iii) There is no record of where cooling towers are located.
  - Without a register of cooling towers, agencies are not able to target owners and operators with relevant information and education and, in the event of a notification or outbreak, must first spend time surveying areas to establish the locations of cooling towers.
- (iv) Some cooling tower systems do not meet current standards of best practice.
  - Some high levels of bacteria and some non-compliance are often detected during investigations of cooling towers.
  - Some cooling towers do not have effective autodosing of biocide and or effective drift eliminators. Some are in need of upgrading or replacement.
  - Some cooling towers are not located appropriately.
- (v) Continuing large counts of bacteria and *Legionella* in cooling towers.
  - A small percentage of cooling tower systems are believed to be contaminated with *Legionella* at any one time.
  - That, if *Legionella* are present in the tower water, spray drift may infect susceptible persons nearby.
- (vi) Increased burden on local government.
  - Any approach that is adopted, be jointly agreed and not based on cost shifting to local government.

**b. Issues about which there was general agreement**

There was general agreement between members of the working party regarding the need for:

- (i) Upgrading of the Regulations.
- (ii) New Standards of Practice prescribing improved levels of maintenance.
- (iii) Enhanced partnerships between the Department of Human Services, local government, Victorian WorkCover Authority, Building Control Commission and Plumbing Industry Commission.
- (iv) Enhanced initiatives to be funded by the State or by industry.
- (v) Relevant ongoing education programs.
- (vi) The registration of all cooling tower systems.

and

- (i) Ongoing routine inspections and/or audits of cooling towers.

## 6. Options for the Enforcement of Best Practice

The working party considered each of the following five options for the enforcement of best practice for maintenance of cooling towers. Each option included upgraded regulations, relevant ongoing education programs and registration of cooling towers.

- | <b>Option</b> | <b>Option also included:</b>   |
|---------------|--|
| (a)           | Mandatory local registration of cooling towers by local government.  |
| (b)           | Mandatory State registration of cooling towers by the Department of Human Services or Building Control Commission.   |
| (c)           | Mandatory local registration of cooling towers and an ongoing inspection/audit program by local government.  |
| (d)           | Mandatory State registration of cooling towers by the Department of Human Services or Building Control Commission, and an ongoing inspection/audit program by the Department of Human Services.                            |
| (e)           | Mandatory State registration of cooling towers by the Department of Human Services or Building Control Commission, and an ongoing inspection/audit program by authorised agencies. (The working party's preferred option.) |

The details of other options considered by the working party, and not recommended, are included in Chapter 7.

The working party agreed that any new arrangements would need to include all of the following components:

### **a. Upgrading of the regulations**

This initiative was supported by the working party because it considered that upgraded Regulations would enable the introduction of improved standards for the maintenance of cooling towers and other water systems.

The Standards of Practice to be referenced by the Regulations would enable the introduction of:

- Laboratory-based techniques for determining total bacteria count.
- Risk-based *Legionella* testing of all cooling towers.

and

- Auto dosing of biocide at all premises.

### **b. Enhanced partnership between the relevant agencies**

There was general agreement between members of the working party that:

- An improved and formalised partnership between the agencies would assist:
  - the investigation of cases of Legionnaires' disease;
  - the development and implementation of ongoing *Legionella* control education programs;
  - the registration of cooling towers;

and

- the implementation of routine inspections and audits of cooling towers.

- The Department of Human Services would, if required, and in addition to its existing functions, make arrangements for:
  - the identification and initial recording of cooling towers;
  - the registration of cooling towers;
  - an appropriate statewide awareness campaign;

and

- the provision of relevant information and education.

- The Victorian WorkCover Authority administers, amongst other things, the *Occupational Health and Safety Act 1985*, and is concerned with reducing work related death, injury illness and disease. The Authority would:

- continue to participate in investigations of industrial sources;
- assist workplaces to improve their systems for management of health risks, including Legionnaires' disease;

and

- provide general information and advice on the management of the risk of Legionnaires' disease, including information on registration requirements.

- The Building Control Commission has responsibility for the administration of the *Building Act 1993*, which seeks to enhance the amenity of buildings, and to protect the health and safety of people using buildings. The Commission would, if requested:

- establish a register of cooling towers;
- extend the essential services regime under the Building Regulations to cover maintenance of cooling towers in all existing buildings in Victoria;
- introduce mandatory annual audits of essential service maintenance by qualified building practitioners and/or environmental health officers;
- Provide training and accreditation of appropriate persons to undertake audits of maintenance of essential services;

and

- Assist to provide ongoing education for owners and operators of cooling towers.

- The Plumbing Industry Commission has responsibility, amongst other things, to manage the standards of plumbing and plumbing installations within a property. The Authority is also responsible for the registration/licensing of persons undertaking plumbing. The Authority would:

- continue to manage standards for plumbing work on cooling towers, and

maintain the Interactive Voice Response database for certificates of compliance issued by plumbers;

and

- notify the registering agency of work on cooling towers, to assist with the locations of cooling towers for registration;

- Local government authorities have statutory public health responsibilities under the Health Act 1958 concerning the health of the municipal community. In addition, local authorities and their environmental health officers have local knowledge of the municipal environment, are experienced in monitoring and enforcement strategies specifically in relation to public health legislation, and are qualified in public/environmental health.
- Enhanced partnership arrangements between the relevant agencies would result in higher levels of compliance and maintenance, resulting in a safer environment for the Victorian community.

### **c. Relevant ongoing education programs**

The working party considered that ongoing education programs would increase:

- Awareness by installers, owners, operators, tenants, those servicing cooling towers, environmental health officers and others of *Legionella*, cooling tower systems, industry best practice and the requirements of the Regulations, Standards of Practice and Guidelines.

and

- Consistent best practice surveillance standards and compliance arrangements.

### **d. Registration of cooling towers**

This initiative was supported by the working party because:

- The location of each tower would be recorded to enable more targeted education of and information to owners, operators, tenants and those servicing cooling towers.

- It would enable all registered operators to be provided with current and proposed legislation, educational brochures and workshops to maximise compliance with the Regulations and Standards of Practice.
- Registration conditions could require *Legionella* safety and or risk management plans, or mandatory reporting of non-compliant results.
- It would enable more rapid and thorough identification and investigation in the event of a notification or outbreak of Legionnaires' disease.
- It would ensure the user pays principle.
- It would provide a revenue source to fund the proposed cooling tower inspections/audit program.

and

- It would provide improved research capacity for Legionnaires' disease.

The working party considered that the development and maintenance of a mandatory register by the Department of Human Services or Building Control Commission was the better option, because it:

- Enabled better coordination and response across municipal boundaries.
- Provided statewide intelligence on locations of cooling towers.
- Provided a central information base to assist research into Legionnaires' disease, and to inform future policy.
- Reduced the need for multiple programs of registration.
- Was likely to be more efficient and use less resources.

and

- Was likely to be more consistent and less fragmented.

It is intended that the mandatory register of cooling towers consist of an electronic database translated to geospatial maps, and that these would be accessible to the Department of

Human Services, local government, the Victorian WorkCover Authority, Building Control Commission and Plumbing Industry Commission according to the *Victorian Geospatial Information Strategy 2000-2003*.

Preliminary discussions with the Land Victoria, Department of Natural Resources and Environment (DNRE) indicate that:

- (a) Local Government has the capacity to use geospatial information technology, and 70 per cent of Victorian councils are currently doing so.

and

- (b) Land Victoria would provide technical support to Department of Human Services or Building Control Commission to develop the system.

### **e. Routine and/or random inspections and audits**

The working party considered that an ongoing program of routine inspections and/or audits would:

- Monitor and enforce best practice by industry in the maintenance of cooling towers.

and

- Inform future requirements for the maintenance of cooling towers.

## 7. Options Considered but Not Recommended by the Working Party

### **(a) Compulsory work place hazard identification, risk assessment and control of risks**

An appropriate amendment to the Occupational Health and Safety (Plant) Regulations 1995 would make workplace hazard identification, risk assessment and control of risks associated with cooling towers compulsory.

This option was not supported by the working party because of concern by the Victorian WorkCover Authority that 'having two regulations which deal specifically with the legionellosis hazard could potentially confuse duty holders'.

### **(b) Cooling towers not identified and registered**

It is estimated that a properly maintained register of cooling towers will enable the cost of managing outbreaks and/or investigations of potential sources of Legionnaires' disease to drop by approximately one-third.

Currently, during investigations of individual cases and/or outbreaks of Legionnaires' disease, the Department of Human Services is required to actively search for cooling towers which are the most likely source of the infection. This requires additional resources to be employed during an investigation and/or outbreak to determine who owns, occupies, manages and/or maintains buildings and property in the area, and whether cooling towers are located in the area. In these circumstances, resources are diverted from managing the investigation and/or outbreak.

For these reasons, the working party did not support any option that did not provide for registration of cooling towers.

### **(c) Registration of cooling towers by local government**

This option provided for each of the 78 councils to maintain cooling tower registers.

Although the working party was aware that registration by local government would have a number of advantages, for example, better local knowledge, knowledge of locations and business changes, local empowerment and possibly more equitable disbursement of funds for local *Legionella* control programs, the option was not supported due to the potential increased costs associated with multiple registers, and the potential lack of consistency and coordination across municipal boundaries.

### **(d) An ongoing inspection/audit program by Department of Human Services**

This option provided for the Department of Human Services, through the Regional Environmental Health Officers or a centrally located group to provide an initial inspection, followed by annual audits, of each cooling tower in Victoria. The option was not supported because the working party considered that other agencies, such as local government, would have a better local knowledge, would be able to deal locally with cooling tower issues, and the monitoring and control of Legionnaires' disease and cooling towers fit comfortably within the scope of local government functions and its public health role under the *Health Act 1958*.

### **(e) Mandatory reporting and recording of all test results and or non-complying test results**

It was proposed to the working party that maintenance contractors forward test results to the Department of Human Services (electronically where possible) and that the details be recorded on the State

register/database. Further, it was suggested that if all sampling outcomes were reported to the Department of Human Services, remedial action could be taken immediately for positive results of *Legionella* and for overdue test results.

This option was not supported due to the expense, and the complex system that would require additional staff to record and review the information, without any obvious benefit. The proposal also tended to shift responsibility for remedial action away from the owners and operators of cooling towers to Department of Human Services.

**(f) Making the maintenance contractor responsible for the sampling and testing of the cooling tower**

This proposal was not supported because it was regarded as impracticable, and would have tended to shift the onus away from the owners and operators of cooling towers, who are currently responsible for their maintenance under the Regulations.

**(g) Standards be developed for companies providing the servicing and testing of cooling towers**

The proposal was not supported because the working party preferred the current Department of Human Services policy of setting performance standards for cooling towers, also because of concerns regarding potential conflict with National Competition Policy.

**(h) 'On the spot fines' for contraventions of the regulations**

The proposal was not supported because a system of 'on the spot fines' would tend to be reactive and more ad hoc. If the proposal was adopted, heavy penalties would be necessary to be taken seriously by owners and operators. The working party also considered that the use of 'on the spot fines' would not be conducive to the proposed partnership arrangement.

The preferred option, which provides for an external audit process, was considered preferable because:

1. It would be proactive.
2. It would enable a risk management approach.
3. It would link well with the Victorian WorkCover Authority risk management approach.

and

4. Education material could be provided during or subsequent to the proposed audits.

**(i) Mandatory routine monthly *Legionella* testing**

This proposal was not supported by the working party because of the unpredictability of the science underlying the test, the long delays for test results, the high cost, the value of the test results and the results giving a false sense of security. However, there was agreement that there would be value in conducting research into *Legionella* testing with a view to improved testing procedures.

## Papers and Other Documents Considered

During the review, the working party considered the following papers and other documents:

### a. Papers prepared for the working party:

- |   |   |
|---|---|
| Department of Human Services  | <ul style="list-style-type: none"> <li>• The summary and options paper: <i>Legionnaires' Disease: Options for Managing Health Risk Associated with Cooling Towers</i>.</li> <li>• Regulatory approaches by Australian States and Territories to the prevention of Legionellosis.</li> </ul> |
| Victorian WorkCover Authority (VWA)                                   | <ul style="list-style-type: none"> <li>• Position paper: <i>Legionnaires' Disease and the Role of VWA and DHS</i>.</li> </ul>   |
| Plumbing Industry Commission  | <ul style="list-style-type: none"> <li>• Plumbing industry position paper for information of members of the Legionella Working Group.</li> </ul>  |
| City of Whittlesea  | <ul style="list-style-type: none"> <li>• Proposal for <i>Legionella</i> control in Victoria.</li> </ul>   |
| AIEH (Victorian Division) and the Cities of Melbourne and Hobsons Bay | <ul style="list-style-type: none"> <li>• Joint position paper: <i>Position on the Future Control of Legionnaires' Disease</i>.</li> </ul>   |
| Building Control Commission   | <ul style="list-style-type: none"> <li>• Proposal for the implementation of a statutory scheme requiring the maintenance of essential services in <b>all</b> buildings.</li> </ul>  |

### b. Other documents

- |   |  |
|---|--|
| National Environmental Health Forum             | <ul style="list-style-type: none"> <li>• Extract from <i>Guidance for the Control of Legionella</i>. 1996.</li> </ul>  |
| Department of Human Services                    | <ul style="list-style-type: none"> <li>• Extract from the <i>Health Act 1958</i>.</li> <li>• Extract from the Health (Infectious Diseases) Regulations 1990.</li> <li>• <i>Guidelines for the Control of Legionnaires' Disease</i> (1989).</li> <li>• Disease Control Protocol. Section 08 Legionnaires' Disease.</li> <li>• Draft <i>Guidelines for the Control of Legionnaires' Disease</i> (1999).</li> <li>• Draft <i>Standards of Practice for the Control of Legionellae in Water Systems</i> (1999).</li> </ul> |
| Hobsons Bay City Council                        | <ul style="list-style-type: none"> <li>• Executive Summary: <i>Cooling Tower Identification and Maintenance Compliance Survey in the Municipality of Hobsons Bay</i> (1999).</li> </ul>  |
| Department of Health NSW                        | <ul style="list-style-type: none"> <li>• Extract from Public Health Regulation 1991.</li> </ul>  |
| Department of Health & Human Services, Tasmania | <ul style="list-style-type: none"> <li>• Extract from <i>Public Health Act 1997</i>.</li> </ul>  |