

Legionella Link

Managing the health risks

February 2005

Message from the Chief Health Officer

The year 2005 brings further improvements to the government's *Legionella* Reform Strategy. Enhancements from 1 March 2005 include legislative changes to the *Building Act* for registrations and risk management plan reviews and audits.

Notifications of *Legionella pneumophila* infections have fallen from a high of 239 in 2000, to 69 in 2004. During the same period, the percentage of cooling towers where *Legionella* has been detected has decreased from an average of over 8 per cent, to 5 per cent.

Achievements during 2004 included:

- over 1500 cooling towers inspected or investigated by departmental officers
- contact with 1900 land owners regarding cooling tower system compliance issues
- a progressive fall of 52 per cent in the number of cooling tower system late registration renewals
- independent audits of 3937 cooling tower system risk management plans
- a progressive decrease of 59 per cent in the number of registered sites where a risk management plan audit had not been completed
- a progressive decrease of 54 per cent in the number of non-compliant risk management plan audits notified to the department (and subsequent follow-up)
- a comprehensive review of departmental guidelines for risk management plan audits
- further improvements to the electronic mapping system linked to the cooling tower system register (used to more readily identify cooling tower systems linked with cases of Legionnaires' disease).

The recently passed *Building (Cooling Towers and Plumbing) (Amendment) Act 2004* strengthened the cooling tower system provisions of the Act to ensure the continuing effectiveness of the strategy.

Owners and managers of cooling tower systems are strongly advised to consider their compliance with the provisions contained within the new Act.

Included in this newsletter is a feedback survey which I encourage you to complete and return to us. Your response will help us to understand the needs of the different stakeholders participating in the Legionella Management Program.

Dr Robert Hall
Director Public Health and Chief Health Officer
Department of Human Services



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Director Public Health
and Chief Health Officer
Department of
Human Services*

Legionnaires' disease

- Legionnaires' disease is a serious, potentially fatal form of pneumonia caused by *Legionella pneumophila* bacteria.
- *Legionella* bacteria are found naturally in the environment and thrive in warm water and warm damp places. They are commonly found in lakes, rivers, creeks and soil.
- Man-made water systems (such as showers, spa pools and cooling towers) provide environments for *Legionella* bacteria to reproduce in large numbers, and to be spread by aerosols.
- Most people exposed to *Legionella* bacteria do not become infected, however, the risk of the disease increases with age, particularly amongst smokers.
- People with chronic medical conditions that weaken the body's immune system (such as cancer, lung disease, diabetes and transplant recipients) may be at increased risk of Legionnaires' disease.



Department of
Human Services

Legionella Reform Strategy

In 2000, the government introduced the Legionella Reform Strategy to address the spread of Legionnaires' disease. The strategy, which included amendments to the *Building Act 1993*, was a well-balanced package of reforms that placed Victoria as the leading state in public health initiatives for the incidence and impact of Legionnaires' disease.

Considerable industry input enhanced the existing strong working relationship between the Department of Human Services (DHS), Building Commission, Plumbing Industry Commission and other stakeholders.

A major achievement has been the number of cooling tower systems replaced with lower-risk alternatives. Since March 2001, 1690 cooling towers have been either decommissioned or removed.

Other achievements during the past two years have included the development of an accredited, independent auditor training program for cooling tower system risk management plans (RMP), training and certification of 132 independent auditors, and the commencement of annual RMP auditing.

During this period, officers followed up approximately 1600 RMP audits reporting non-compliance issues, and carried out over 2000 site inspections or investigations.

An electronic mapping system linked to the Cooling Tower System Register assists investigating officers to identify and locate cooling tower systems potentially linked to cases of Legionnaires' disease.

With these achievements, the strategy is now fully operational. Some aspects of the legislative provisions still required amendment to ensure the strategy's continuing effectiveness—these changes were brought about by the recently passed *Building (Cooling Towers and Plumbing) (Amendment) Act 2004*, which can be accessed at www.dms.dpc.vic.gov.au/.

Registration and associated issues

Industry compliance with cooling tower system registration requirements has been very good.

New amendments to the legislation will assist industry and improve registration in three ways.

Firstly, the amendments provided for a single registration system, irrespective of when the cooling tower system was brought into operation. When the legislative provisions were first introduced in 2000, differing approaches were needed for registering existing and future cooling tower systems, to provide a transition period and avoid disruption to industry. Now that the legislation has been in operation for almost four years, these are no longer required.

Secondly, people registering more than one cooling tower system may synchronise the registration periods. There are many sites with multiple cooling tower systems, and a significant number of owners who have cooling tower systems on more than one site. The new provisions will reduce their administrative burden by enabling synchronisation of registration and registration renewal dates.

Thirdly, a technical issue regarding late registrations and renewals has been addressed. There has been some concern about the validity of certificates of renewal, where an application for renewal of registration was made *after* the initial



Legionella Reform Strategy (continued)

registration period had expired. The amendments expressly provide for renewals to be effected *despite* the expiration of the previous period of registration, and validate past renewals effected by the Building Commission.

RMP and audits

The Act requires the owner of land with a cooling tower system to prepare an RMP and to conduct reviews of that plan. However, the Act did not provide much detail on the review process, nor a clear indication of the ‘triggers’ for such a review. Industry has raised concerns about these issues. Clarification was also needed about the period for auditing cooling tower system risk management plans.

The new legislation specifies when an RMP must be reviewed, and that a formal review of the plan must be carried out at least annually. (It also clarifies the period of cooling tower operations that must be examined by an auditor).

Under other provisions of the Act, the auditor was required to advise the department of certain matters within three business days of forming the requisite belief. This short timeframe has proved to be unnecessarily onerous and is now set at seven days after the completion of the audit.

Transferring information regarding cooling tower systems

The Victorian WorkCover Authority, municipal councils, the Environment Protection Authority and sewerage authorities sometimes require information about cooling tower sites. For example, the Victorian WorkCover Authority may require information to address occupational health and safety issues; municipal

councils, the Environment Protection Authority and sewerage authorities may require information to address chemical discharges to stormwater drains and watercourses.

The amendments enable information on cooling tower systems to be provided to these bodies, so that they can fulfil their statutory functions.

Changes to the Building Act 1993

Changes to the Building Act 1993 are **effective from 1 March 2005**. The *Building (Cooling Towers and Plumbing) (Amendment) Act 2004* bring these changes into operation.

The previous legislation dramatically reduced the number of cases of Legionnaires’ disease in Victoria. The new amendments will ensure that the government’s highly effective reform strategy continues to minimise the incidence and risk of *Legionella* infection, improving community health and safety outcomes.

Summary of changes to the legislation

The changes that will be of interest to most stakeholders involve:

- defining when cooling tower systems (CTS) are ‘in operation’
- synchronising the registration periods for a number of CTS, via the Building Commission

- reviews of risk management plans (RMP)—now required every 12 months
- defining the “trigger” events which would require the RMP to be reviewed
- auditors indicating whether a review of the RMP was conducted within the previous 12 months
- audit periods to be lengthened to annually and, in effect, become continuous
- certificates of audit being sent to DHS by auditors within seven days, not three as previously required.

There are also:

- technical amendments relating to issue of registration certificates after expiry, and validation of previous registrations where application was made out of time; these came into effect on 15 December 2004.
- changes to plumbing certificates and miscellaneous plumbing matters; these changes will come into operation when proclaimed.

When a cooling tower system is in operation (Section 75AC)

Section 75B of the Act requires any CTS to be registered when in operation, while Section 75 AC defines *when* a CTS is ‘in operation’.

A CTS is now deemed to be in operation when it is started, even if it is only to enable the conduct of tests associated with installation, commissioning or re-commissioning.

Once started, a CTS is also deemed to remain in operation until it is decommissioned or removed **and** the owner has notified the Building Commission in writing that it has been decommissioned or removed. *See separate section on decommissioning.*

Notifications of infectious diseases 1 January–31 December 2004	
<i>Legionella pneumophila 1</i>	34
<i>Legionella pneumophila</i> —(other)	35
<i>Legionella longbeachae</i>	27
<i>Legionella</i> other	7
Total	103

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Legionella Reform Strategy (continued)

Synchronising registration periods for cooling tower systems (Sections 75DCA & 75DCB)

Refer to the article on synchronisation on page 5.

Reviewing risk management plans (Section 75EB)

There is now a requirement that RMP be reviewed and, if necessary updated, at least once every twelve months. The review is no longer linked to the registration period.

This change was needed to provide greater flexibility to industry.

In addition, the following are now defined “trigger” events requiring the review of RMP:

- *Legionella* is detected on two or more occasions in any 12 month period
- the owner is given written advice by the Secretary to the Department of Human Services that a case of Legionnaires’ disease is associated with the system
- the owner receives a report from the Secretary, or from any person engaged by the owner or owner of the system, that control measures used in respect of the system are inadequate or require improvement
- there is significant change in any of the environmental conditions under which the system operates
- the owner receives an audit certificate that states that the plan does not address the risks specified in the regulations.

The amendments to the Act will ensure that reviews are conducted annually, or as needed by any “trigger” event, so that RMPs remain up-to-date and relevant in managing the risks of *Legionella* in CTS and in the subsequent control of Legionnaires’ disease.

The process of reviewing RMPs should include, as a minimum, a review of

- risks and risk categories associated with the system
- the circumstances associated with any defined “trigger” event
- results of microbiological and chemical tests for the previous 12 months
- details of service records for the previous 12 months
- the environmental conditions under which the system operates
- changed conditions, if any, under which the system is operating

The review must be documented, dated and signed, and include details of proposed actions, together with timelines.

Audits of risk management plans (Sections 75F, 75FA & 75FB)

Reviews

Auditors must also state on the certificate whether the RMP has been reviewed within the 12 months before the audit.

The person commissioning the audit will therefore also need to provide the auditor with relevant documentation, showing that a review has taken place on a certain date. Owners should take this opportunity to keep better records of review dates and outcomes. Remember, it is important that each RMP is reviewed at least once each year. These reviews can of course be conducted at the same time for several CTS on a site, as reviews and audits are no longer tied to a specific timing related to the registration expiry date.

Overall, this new information provided on audit certificates will enable better follow-up on instances where RMP have not been reviewed annually. This is another way to ensure that RMP are kept up-to-date and relevant to the risks presented by a CTS.

Audit period

The audit period is now up to 12 months and is not tied to registration expiry dates. This means that subsequent audit intervals are effectively continuous. This improves on the previous situation, where the audit period may have been as little as nine months, thereby leaving the remaining time within the registration period left un-audited. The result will be more meaningful audits, as there will eventually be no gaps in the audit intervals for any system.

Also, the new requirements enable audits (and reviews as previously mentioned) to be synchronised if desired for different CTS on a site or sites.

Forwarding certificates

Auditors now have an extension of time (up from three days to seven days) to forward copies of their audit certificates to the department.

The department is developing a fully automated electronic process for forwarding and analysing the information contained on the certificates. This will lead to increased efficiencies in this area, enabling more rapid follow-ups where needed.

Synchronisation of registration renewal dates

Effective from 1 March 2005, changes to the *Building Act 1993* allow synchronisation of registration renewal dates for landowners responsible for multiple cooling tower systems on single or multiple sites.

The owner of the land may request synchronisation of registration periods when applying for a new registration, or for existing multiple cooling tower systems. This simplified registration renewal process means that all registrations expire on the same date and one payment can be made for all fees payable.

Here is an example of a synchronisation:

Owner:	Australian Pty Ltd		
Site address:	1 Main Street Melbourne 3000		
Site ID	CTS no.	Registration expiry date	Nominated expiry date (must be an existing expiry date)
6130	9094	1-Aug-05	1-Aug-05
6130	9095	1-Aug-05	1-Aug-05
6130	9096	1-Aug-05	1-Aug-05
6130	9197	25-Sept-05	1-Aug-05
6130	9198	1-Oct-05	1-Aug-05
6130	9199	10-Oct-05	1-Aug-05

Owners may nominate the registration renewal date, which **must** be an existing expiry date of a registered cooling tower system.

Pro rata registration fees will be calculated for shorter registration periods, and refunds will be issued if required.

Please contact the Building Commission's Cooling Tower Registration Officer on 9285 6428 to discuss synchronisation of registration renewal dates.

Updated Guidelines for Auditing Risk Management Plans for Cooling Tower Systems

As a result of changes to the *Building Act 1993*, the Guidelines for Auditing Risk Management Plans for Cooling Tower Systems have been updated. These Guidelines have been updated to incorporate the new legislative amendments that come into effect on 1 March 2005 and will replace the previous Guidelines for Auditing Risk Management Plans for Cooling Tower Systems dated 13 April 2004. These Guidelines will soon be available on the Department of Human Services web site <http://www.health.vic.gov.au/environment/>

Continuous registration for cooling tower systems

Changes to the *Building Act 1993* mean that a cooling tower system's registration must be renewed before it expires. If registration is allowed to expire, legal proceedings may be taken against the landowner. Fines of up to \$12,000 may be imposed.

The Building Commission will forward an Application for Renewal of Registration to the notified postal address of the landowner two months before the current registration expires.

Enquiries about the registration renewal process should be directed to the Cooling Towers Registration section of the Building Commission, on 9285 6428.



Important—dosing and sampling points on a cooling tower system

The Department of Human Services inspectors have noted a number of deficiencies in dosing and sampling arrangements for cooling tower systems:

Dosing point

A number of systems still use the cooling tower basin as the site for biocide and chemical dosing. While this may present a convenient point of dosing if there is no other point installed on the recirculation pipework for the system, the arrangement may need improvement, particularly if the bleed-off point is also from the basin and there is no automatic control to shut off the dosing while bleed (or blowdown) occurs. This improvement will prevent unnecessary discharge of chemicals into the sewer or waste stream and possibly reduce chemical use and wastage.

Sampling point

Sampling points should always be labelled clearly with the DHS CTS number and be safely accessible.

Having sampling occur very near or just after the dosing point has the potential to render test results for microbiological or biocide concentrations meaningless. It is always preferable to have a sampling point on the return line to the cooling tower. If this cannot be readily installed, it is appropriate to take samples prior to the dosing point.

In the case of dosing being delivered to the cooling tower basin and no sampling point available on the return line, samples should be taken in the interim from the falling water in the cooling tower prior to reaching the basin.

It is important that owners, managers and contractors ensure that cooling tower dosing and sampling arrangements are consistent with meeting both the risks of the system, and the requirements of the regulations.

Records of maintenance and corrective activities

Last year, Legionella Program officers investigating records of cooling tower systems associated with Legionnaires' disease became aware of situations **at both small and large businesses** where both:

- Laboratory reports for samples taken by or for the owner showed either the presence of *Legionella*, or a heterotrophic colony count (HCC) in excess of 100,000 CFU/mL and
- On-site records did not adequately show details of maintenance or corrective action (if any) taken to meet the requirements of regulations 12 or 13 of the Health (*Legionella*) Regulations 2001.

The *Building Act 1993* requires a record to be kept on site of all repair and maintenance work carried out on a system, while the Health (*Legionella*) Regulations 2001 requires records to be kept on site of all maintenance and corrective activities undertaken in relation to a system.

On receiving a report that a sample taken from a cooling tower system had *Legionella* present or an HCC result in excess of 100,000 CFU/mL, **both the owner and manager have responsibilities**, not only to ensure that maintenance, corrective action and re-sampling are undertaken according to the

methods and timelines specified in the regulations, but to ensure that adequate records are maintained of these activities.

Maintenance and corrective actions specified in Regulations 12 and 13 of the Health (*Legionella*) Regulations 2001 include one or more of the following:

1. manually treating the water of the system with additional quantities of biocide, or with an alternative biocide
2. disinfecting, cleaning and re-disinfecting the system
3. reviewing the water treatment program, tower operation and maintenance program of the system
4. correcting any faults, and making any changes necessary to prevent a re-occurrence of those faults and
5. closing the system until the problem has been remedied.

Is it not sufficient to merely state that one or more of the above items were attended to. **Proper records must be kept on site that show the details of the action taken.**

Records that demonstrate both adequate risk management and compliance with the regulations would include at least dates, personnel involved and details of checks carried out, chemicals used, readings obtained and *specified* reviews undertaken.

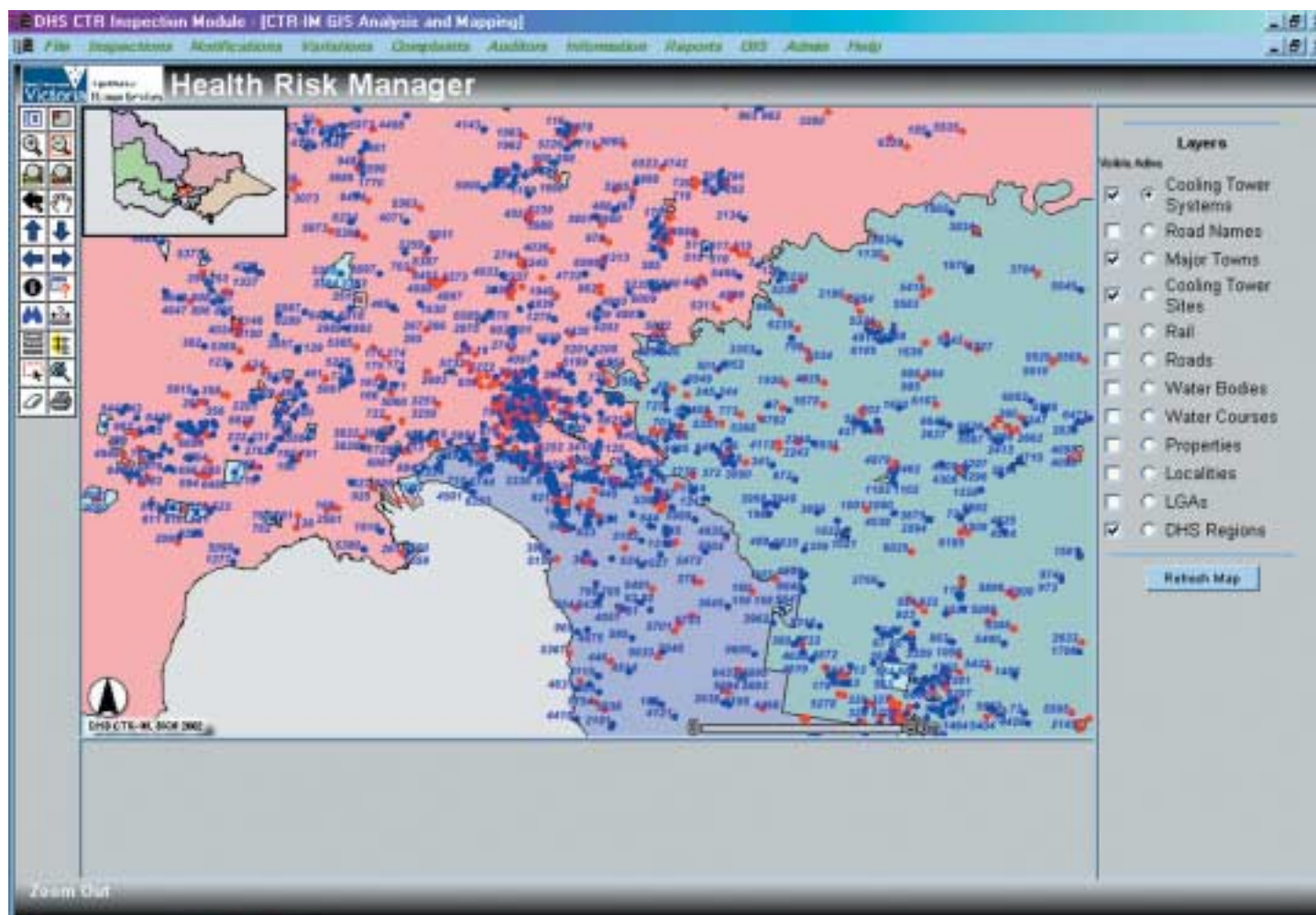
The Victorian Supreme Court has approved a second settlement over Australia's largest outbreak of Legionnaires' disease, at the Melbourne Aquarium.

More than 170 people were affected by the outbreak in April 2000, with 95 people hospitalised and four deaths. *Legionella* was traced to cooling towers at the aquarium.

The court has approved a \$450,000 settlement, which includes legal costs for 11 people who contracted the disease. In February 2005 a multi-million dollar payout was approved for 144 people.

Melbourne Aquarium has begun legal action against its air conditioner suppliers and water service company.

Further information on this case can be obtained from www.vgrs.vic.gov.au



The Cooling Tower System Register electronic mapping system locates all registered Cooling Tower Systems in Victoria to assist in the identification and location of towers potentially linked to cases of Legionnaires' disease.

Observations

The Department of Human Services encourages auditors to report to the owner and the department as observations, any concerns the auditor has regarding public health issues that come to the notice of the auditor.

Such concerns may include breaches of legislation, for example:

- inadequate remedial action following adverse events such as a high HCC count or the detection of Legionella in the CTS,
- failure to promptly advise DHS of a third consecutive Legionella positive, or
- failure to conduct a review of the RMP following a defined "trigger" event.

Decommissioning a Cooling Tower System

A cooling tower system is regarded as having been decommissioned if:

- all of the fans of the system are removed from the cooling tower or towers; or
- all of the fans of the system are isolated from the power supply; or
- the water supply to the system is disconnected and the water is drained from the system; or
- the system is changed so that (when it is in operation) the water of the system does not recirculate in the system; or

- the system is changed so that it is no longer a cooling tower system, within the meaning of Part 5A of the *Building Act 1993*.

For the purpose of the *Building Act 1993*, a cooling tower system is not decommissioned merely because:

- an electrical switch for the system is turned off;
- the water supply tap to the system is closed; and/or
- the water is drained from the system.

Accreditation scheme makes a difference in water treatment industry

An accreditation scheme for water treatment service providers is helping the industry to overcome insurance problems and demonstrate its competence to building owners and end users. Engaging an accredited water treatment company assures clients that their cooling tower maintenance is being performed to the highest standards.

The scheme was established recently by the Australian Institute of Refrigeration, Air Conditioning and Heating (AIRAH). To achieve AIRAH accreditation, service providers must undergo a rigorous third party audit for compliance with the Victorian *Code of Practice for Water Treatment Service Providers (Cooling Tower Systems)*. All audits are carried out by NCS International, one of Australia's largest and most experienced third-party certification bodies.

The accreditation scheme is already having an effect on industry—one major company was accredited in July 2004, and several others are expected to complete the process by the end of 2005. A promotional campaign is now underway to encourage end users to use accredited water treatment service providers.

Accreditation includes compliance with a number of recent revisions to the Code, including AIRAH Level 1 technician training for water treatment service provider companies and compliance with the AIRAH code of ethics. The technician training program was developed in conjunction with industry through the AIRAH water treatment special interest group, which has taken an active role in

the development of the Code since its inception in 2001.

This AIRAH accreditation symbol is proposed to guarantee that the water treatment service provider:

- will abide by a Code of Ethics
- will exercise environmental and OH&S best practice
- has appropriate insurance cover
- has suitably trained technicians to service the cooling tower system
- undergoes a regular third party audit to verify compliance with all aspects of the Code.

Insurance update

The accreditation scheme is also helping service providers to obtain the necessary insurance cover. AIRAH has worked with insurance brokers and an international underwriter to establish public and product liability and professional indemnity insurance for water treatment service providers. AIRAH has also facilitated meetings between water treatment companies, the insurance industry and the Department of Human Services, to ensure that water treatment companies can obtain the appropriate level of cover.

National Water Treatment Conference—August 2005

The AIRAH water treatment special interest group will continue its active role during 2005. Jackie Breasley recently

joined AIRAH in the role of executive officer

supporting the water treatment group, and is planning a national water treatment conference to be held in Sydney on 4 and 5 August 2005. As part of the conference, a meeting is proposed, to discuss opportunities for national consistency in *Legionella* management. Some of these opportunities include:

- developing a nationally accepted training scheme
- having a national code of practice and company accreditation program
- setting national minimum standards of service
- having a national code of ethics.

Level 2 training

A level 2 training program for water treatment supervisors is also under development, to complement the existing level 1 program for technicians. As AIRAH is a registered training organisation, the level 2 course will give participants an accredited, nationally recognised qualification. It is also proposed that the level 1 technician training will become nationally accredited in the future.

For more information, visit the AIRAH website at www.airah.org.au, contact Jackie Breasley in the AIRAH office on 03 8623 3012, or email jackie@airah.org.au



Legionella Link Survey

This survey is part of a review of the current *Legionella Link* newsletter, exploring areas for possible improvement.

We welcome your views on the value of the content presented in *Legionella Link* and the type of information you would find most helpful in future issues.

All responses will be kept strictly confidential.

When you have completed the questionnaire, please return it to us via one of the following options:

Fax: (03) 9637 4657

Post: Legionella Program
17/120 Spencer St
Melbourne VIC 3000

Email: lrmp@dhs.vic.gov.au

Your response would be appreciated by
COB Wednesday 23 March 2005.

Q1. In the context of legionella risk management, which are you?

(please tick relevant section(s))

- Water treatment service provider
- Local or state government
- Building manager
- Building owner
- Body corporate
- Cooling tower cleaning service
- Cooling tower supplier
- Cooling tower owner
- Management
- Association
- Industrial customer
- RMP auditor
- Education provider
- Domestic customer
- Agricultural customer
- Other

Q2. What type of information do you find most useful in *Legionella Link*?

(please tick)

- Activities of associations
- Biocide effectiveness comparisons
- Inspection and auditing updates
- Legislative updates
- New developments in cooling towers
- Number of cooling tower systems registered in Victoria
- Number of cases of *Legionnaires' disease* reported
- Publications update
- Other *(please describe)*

Q3. What subject areas do you think should be covered by *Legionella Link*?

Q4. What type of information have you found *most* useful in this and past issues?

Q5. What type of information have you found *least* useful in this and past issues?

Q6. Can you suggest any organisations or individuals that should be included in future circulation lists?

(please provide names and contact details)

Q7. Would you like *Legionella Link* to be sent to you by email?

- yes no

(please provide email details below)

_____ @

Q8. Do you still wish to receive a printed copy of *Legionella Link*?

- yes no

Q9. Have you any further suggestions or comments?

Contact details (OPTIONAL)

Name _____

Address _____

Email _____

Phone _____