Guidelines for the safe use of pesticides in non-agricultural workplaces



Delivering a **Healthy WA**

Australian Environmental Pest Managers Association
Northern Territory Government
Government of South Australia Department of Health
State Government Victoria Department of Human Services

Foreword

These guidelines were developed as a guide for people working in pest management and related industries. They offer practical and informative guidance on how to comply with legislation relating to the use, transport, storage and disposal of pesticides.

The guidelines have been written to ensure consistency with chemical control of use, environmental, public health and workplace health and safety legislation where relevant. They provide a single source of information so that people will not have to consult several documents regarding the safe use of pesticides.

The guidelines promote safe and healthy practices in regards to the use, storage and transport of pesticides by end users. They aim to minimise the risk of detrimental effects to human health and the environment when storing, transporting or using pesticides, by suggesting ways to control known risks associated with these substances. They cover pesticide applications both in the field and in and around buildings.

People working with pesticides, including pest management technicians, government workers, grounds maintenance persons, weed spraying contractors and green keepers, should find these guidelines useful.

The guidelines also provide useful background material that will assist trainers, educators, medical practitioners and government in providing appropriate advice to their clients.

These guidelines were written by the Pest Management Industry and Government Sector Advisory Group (2004) which is made up of representatives from the pest management industry and state government licensing agencies.

Disclaimer

This document has been prepared in good faith exercising due care and attention. However, no representation or warranty, expressed or implied, is made as to the relevance, accuracy, completeness or fitness for purpose of this document in respect of any particular user's circumstances. Users of this document should satisfy themselves concerning its application to, and where necessary seek expert advice about, their situation. Persons who require strict legal interpretation relating to pest management legislation should refer to their specific state or territory's legislation.

Content

1. Introduction

1.1 Title

These guidelines may be cited as the *Guidelines for the safe use of pesticides in non-agricultural workplaces.*

1.2 Purpose

To provide practical guidance on the safe use of pesticides for the protection of human health, by assisting pesticide users to achieve a safe system of work and comply with relevant Commonwealth, state and territory legislation.

1.3 Scope

These guidelines apply to employers, self-employed persons and employees engaged in the end use, transport and storage of pesticides other than for agricultural and pastoral purposes. This includes pest management technicians and contractors involved in pest management, as well as government workers, grounds maintenance persons, weed spraying contractors, green keepers and others who use pesticides as part of their work duties.

These guidelines do not apply to:

- the use of pesticides in agricultural workplaces (except when the work is done by a licensed pest management technician in or around buildings)
- the application of timber preservatives where covered in the *National code of practice and guidance note for the safe handling of timber preservatives and treated timber*
- the manufacture, warehousing, distribution or sale of pesticides.

1.4 Commencement

These guidelines commence on 1 November 2007.

1.5 Use of these guidelines

In these guidelines, words such as ‘should’, ‘may’ or ‘consider’ indicate recommended courses of action. However, an alternative method of achieving a safe system of work may be adopted. In this case, the person responsible for the workplace must be able to demonstrate that the required or desired level of safety is achieved by the alternative safe system of work.

These guidelines should be used to help industry establish a best practice approach to public health and occupational health and safety in the workplace.

1.6 Definitions

Many of the following definitions are those used in Acts and regulations relevant to the pest management industry. However, some have been adapted for these guidelines.

Anti-cholinesterase – a health effect of certain compounds such as organophosphate pesticides. These health effects are described in section 6.5.

ADG Code – the *Australian code for the transport of dangerous goods by road and rail* prepared by the Federal Office of Road Safety of the Commonwealth Department of Transport and Communications (most recent edition).

APVMA – Australian Pesticides and Veterinary Medicines Authority

Agricultural – a workplace predominantly engaged in the production of stock and/or crops and/or animal products (such as milk or wool), including farms, orchards, vineyards, market gardens and forestry. This does not include workplaces solely processing agricultural products.

Bulk tank – for the storage of dangerous goods means a container for liquid of capacity of more than 250 litres or a container for gas with a (water) capacity of more than 500 litres, and includes a bulk liquid container, such as an intermediate bulk container (IBC).

Bund – an embankment or wall, which may form part or all of the perimeter of a compound. Both the bund and the compound floor must be sufficiently impervious to contain liquid spillage or leakage equal to 110 per cent of the largest volume container or 25 per cent of the total volume of packaged liquid pesticides.

Confined space – a space that may become contaminated, for example with dust, asbestos, pesticides, or oxygen deficient (see the requirements in legislation in your state or territory). Note: this may include locations such as pits, tunnels and ventilation shafts.

Container – anything in or by which a substance or item is wholly or partly cased, covered, enclosed or packed, whether it is empty or partially or completely full. It does not include a vehicle, freight container or bulk container.

Dangerous good – a substance or item that meets the classification criteria of the ADG Code.

Employer – an entity or an individual employing a person under a contract of employment, including an apprenticeship or traineeship. This also includes self-employed persons.

Employee – a person employed under a contract of employment, apprenticeship or traineeship.

Exposure – the contact between a person and a pesticide.

Exposure standard – the airborne concentration of a particular substance in a person's breathing zone, as established in the *Exposure standards for atmospheric contaminants in the occupational environment,* published by the National Occupational Health and Safety Commission, and revised from time to time.

Fumigation – the process of applying a pesticide in the gaseous phase, including the use of liquids that evaporate or solids that sublime, burn or react to produce a gas.

Hazard – the potential for a pesticide to cause an adverse effect, due to its intrinsic properties.

Hazardous substance – a substance that has an adverse health effect and:

- is listed in the *List of designated hazardous substances,* published by the National Occupational Health and Safety Commission, and revised from time to time
- fits the criteria set out in the *Approved criteria for classifying hazardous substances,* published by the National Occupational Health and Safety Commission, and revised from time to time.

Health surveillance – any monit**oring of any person, i**ncluding biological monitoring and clinical procedures undertaken by a medical practitioner, for the purpose of determining health status in relation to occupational exposure to a pesticide. The term does not include atmospheric monitoring.

Herbicide – is included in the legal definition of pesticide.

Integrated Pest Management (IPM) – incorporates physical, cultural and chemical control.

Material safety data sheet (MSDS) – a document prepared in accordance with the *National code of practice for the preparation of material safety data sheets,* published by the National Occupational Health and Safety Commission, and revised from time to time.

Must – a legal obligation.

Organophosphate – 'esters of phosphoric or phosphorothioic acid'.
Note: Organophosphates usually have the words 'anti-cholinesterase compound' or 'cholinesterase inhibitor' on the label. Health surveillance may be required, see section 6.4. The health effects are described in section 6.5.

Packing group (PG) – the division of certain classes of dangerous goods as defined by the ADG Code.

Person – means a natural person or a body corporate.

Pest – includes any arthropod, mollusc, rodent, bird, weed or other biological entity, that injuriously affects a person or place, or may injuriously affect a person or place by:

- transmitting disease, toxin or other pest
- causing physical damage to a place or thing in the place
- causing distress or adverse psychological or social effects in a person.

Pest management technician – an individual who holds a licence issued by a state or territory licensing authority to undertake pest management activities. Pest management technicians may also be known as pest control operators or contractors.

Pesticide – any substance registered by the APVMA as an agricultural chemical. This includes insecticide, arachnicide, herbicide, rodenticide, fungicide and avicide.

Record – written information generated at a workplace showing lists or procedures in place and includes electronically stored information.

Reseller – any person (such as a distributor) who sells a substance but is not a retailer.

Restricted chemical product – a pesticide that has supply and use restrictions placed on it by the APVMA.

Retailer – a person who sells a substance to any member of the public who themselves are not engaged in any further resale of the substance, such as a supermarket or hardware store.

Risk – the likelihood of an adverse or hazardous event occurring.

Scheduled poison – any substance contained in a schedule of the *Standard for uniform scheduling of drugs and poisons* (SUSDP), published by the Commonwealth Government.

Self-employed person – a person who works for gain or reward other than under a hiring arrangement, a contract of employment or an apprenticeship or traineeship, whether or not he or she employs others.

Substance – see 'pesticide'.

Should – (in relation to a work method or requirement described in these guidelines) means that the work method or requirement is optional. However, if an alternative is chosen, the person must be able to demonstrate that it is a safe system of work.

Spraying – includes the application of a pesticide by any means including puddling, and the use of powders, baits, foams, gels and granules.

Supplier – includes a manufacturer, importer, wholesaler, reseller or distributor, but does not include a retailer.

Toxicity – the ability of a chemical to cause adverse effects when absorbed by the organism.

Use – the production, handling, storage, transport or disposal of a pesticide for the purpose of end use.

Worker – includes employees, the self-employed, contractors, labour hire personnel and any other person carrying out a work activity.

Workplace – any place where a person works, or a workplace activity takes place, and includes vehicles.

2. Legal responsibilities

People who supply, handle, store or use pesticides in a workplace have legal responsibilities under Commonwealth, state and territory occupational health and safety, environmental, public health and dangerous goods legislation to ensure such practices are safely conducted, so as not to endanger their own health and safety and that of others.

Employers and the self-employed have an obligation to establish and maintain a safe system of work. This includes responsibility for the safety of people visiting a workplace or a public place, such as greens, parks and gardens. Employees have an obligation to implement the employer's safe system of work.

Premises such as residences and parks are a workplace while the work of pesticide application is being carried out and both the worker and employer have duty of care obligations in these circumstances.

Other legislation requires pesticide users to take steps to protect the environment and other members of the public, including taking care when disposing of unwanted pesticides.

These guidelines provide advice to help people comply with the relevant legislation and establish a safe system of work. Where documents are referenced, the most recent edition should be consulted.

Where legislation provides no specific instructions for action, appropriate Australian Standards, guidelines and codes of practice and labels should be followed, for example, for termite management.

2.1 Pesticides legislation

Any chemical substance when used as a pesticide for the control of pests, must be registered or approved by the APVMA and must be supplied with a label approved by the APVMA, which explains how to use the pesticide safely and effectively.

State and territory chemical control of use legislation requires all users to use pesticides that are registered or approved for use, in accordance with the registration and approved conditions on the label.

The APVMA or state and territory licensing jurisdictions may grant permits for the supply and 'off-label' use of an unregistered pesticide. Off-label permits can be issued to allow a pesticide to be used in a situation and/or for pests not listed on the label.

Users must not cause damage or injury to people during the use or disposal of pesticides. Use of pesticides is subject to the requirements of relevant state and territory control of use and public health legislation. Disposal of pesticides is subject to the requirements of relevant state and territory environmental protection and public health legislation.

2.2 Occupational health and safety legislation

Occupational health and safety legislation in each state and territory establishes general obligations on employers, self-employed persons, suppliers and employees to ensure the health and safety of all people in workplaces, including visitors. It also imposes obligations on building owners (for example, in the case of multi-tenanted buildings) and other persons in control of a place of work. These obligations apply to pesticides used in workplaces.

2.2.1 Hazardous substances and/or dangerous goods legislation

These guidelines provide guidance about how to comply with the requirements of legislation that relates to the supply and use of hazardous substances and dangerous goods in workplaces. Many of the pesticides registered by the APVMA are classified as hazardous substances. When these pesticides are supplied to, or used in, a workplace, state and territory legislation applies. Hazardous substances and dangerous goods must be appropriately labelled.

2.3 Employers

Under state and territory legislation, employers must ensure the risk to the health and safety of their employees and other persons at their place of work is minimised. This includes minimising health risks associated with the use and storage of pesticides. Employers have specific obligations to:

- ensure that information is readily available detailing how pesticides can be used safely and without risks to health
- provide employees with appropriate instruction, training and supervision
- provide safe systems of work, including the use of plant and equipment
- conduct workplace risk assessments
- keep records.

Employers must also protect the health and safety of others who are not employees, such as contractors and their employees, or members of the public visiting a workplace. This includes minimising risks arising from the application of pesticides, spray drift and any residues. This duty of care to others may not be delegated.

2.4 Self-employed persons

Self-employed persons (see also section 2.3) include sole traders, contractors and sub-contractors. These people have the same responsibilities as employers to themselves and others at the place of work. A reference to employer duties in these guidelines also applies to self-employed persons, as meeting the relevant requirements of these guidelines will help to protect their own health and safety.

2.5 Suppliers of pesticides

2.5.1 Manufacturers and importers

It is the responsibility of manufacturers and importers to:

- determine that a substance has been classified as a hazardous substance by the manufacturer or importer in accordance with the document: *Approved criteria for classifying hazardous substances* [NOHSC: 1008(1999)] classifying hazardous substances including pesticides
- prepare Material Safety Data Sheets (MSDS)
- ensure that products are registered by the APVMA
- maintain records regarding transactions in pesticides
- ensure hazardous substances, dangerous goods and pesticide products are correctly stored and handled on their premises and during supply to the end user
- apply approved and/or required labelling to packaged products
- advise of label changes, in particular any changes to safety precautions and health risks.

2.5.2 Suppliers

It is the responsibility of suppliers, including resellers, to:

- ensure containers holding hazardous substances, dangerous goods and pesticides are properly labelled
- provide MSDS to end users for any pesticide they supply
- maintain records regarding transactions in Schedule 7 poisons and restricted chemical products.

2.6 Retailers and resellers

Resellers, such as trade sales outlets, are not retailers, and so must provide end users with MSDS. Trade sales include sales of substances intended solely for use in workplaces. Resellers are required to maintain records relating to transactions in Schedule 7 poisons and restricted chemical products and may be required to hold a licence. Refer to the relevant state or territory licensing authority for further information.

A retailer is a person who sells to any member of the public who is an end user. Retailers (for example, supermarkets and hardware stores) are not defined as suppliers by hazardous substance regulations and are not required to provide MSDS to customers. However, retailers may be able to assist purchasers in obtaining the relevant MSDS of pesticides and should provide them to purchasers on request.

2.7 Employees

An employee working with pesticides has a responsibility to maintain safe work practices to protect their own health and safety and that of others at the workplace.

Employees should report promptly to their employer anything which may, in their view, affect compliance with any relevant legislation, codes of practice or safe work systems in a workplace.

Additional duties of employees are set out in the occupational health and safety legislation in each state and territory.

2.8 Licensing of pest management technicians and fumigators

Any person engaged in a pest management activity must have a pest management technician's licence or be recognised as a trainee pest management technician working under the supervision of a licensed pest management technician.

Any person engaged in a fumigation activity must have a fumigator's licence or endorsement or be recognised as a trainee fumigator working under the supervision of a licensed fumigator.

Specific information on obtaining a pest management technician's licence or fumigator's licence or endorsement should be requested from the relevant state or territory licensing authority where the pest management activity is being undertaken.

See Appendix 3 for state and territory licensing requirements.

2.9 Persons in control of workplaces

Persons in control of a workplace include the owners of tenanted buildings. In such cases, if the owner or agent arranges pest treatment then it may be necessary for them to assess risks to all occupiers and notify occupiers of occasions when pest management has been arranged.

3. Consultation with employees and contractors

Employees should be consulted and advised of specific workplace risks and hazards that may affect their health and safety, so they can positively contribute to the risk management process.

Legislation requires employers to ensure that consultation occurs with employees during the identification and assessment of risks, the development of control measures, and changes to systems of work that may affect health and safety.

Consultation involves sharing information and exchanging views between the employer, employees and their representatives, or contractors.

In a large workplace with a number of employees, it may be appropriate to use a formal process with a workplace occupational health and safety committee.

In a small workplace, consultation could be an informal discussion between employer, employees and other persons, including contractors, about the implementation of a safe system of work or during an inspection of the workplace.

3.1 Consultation process

In relation to the use and storage of pesticides in the work environment, the consultation process should include:

- identifying hazards and assessing risks associated with the storage and handling of pesticides
- planning the introduction of a new pesticide, new application method or modifying an existing process
- deciding on control measures and how their use and maintenance can be checked
- selecting and wearing personal protective equipment
- training requirements
- communicating with a contractor
- advising on particular pesticides
- the role of air monitoring and health surveillance, and the choice of a medical practitioner (where applicable)
- ways of providing access to MSDS to employees and others at the worksite.

3.2 Advice to others at the worksite

Persons in control of tenanted buildings (for example, office blocks and flats) should devise a way of advising occupants of intended pesticide treatment.

Persons in control of areas such as parks and greens should devise suitable ways of warning the public or other site users of areas that have been treated.

4. Overview - managing the risks of pesticides

The following procedures will help you establish practical methods, appropriate to your work, for a safe system of work. The aim of the risk management of pesticides is to minimise or eliminate illness or injury by:

- identifying the pesticide hazards in the workplace
- assessing the degree of risk created by the pesticide hazards, in storage and work
- determining and implementing appropriate measures to control risks and improving existing controls
- appropriate supervision
- appropriate training of employees
- recording any action or work procedure established for the workplace
- checking the success of control measures.

4.1 Identification of hazards

Pesticide hazards in the workplace can be identified from the label on containers and the MSDS for the pesticides supplied.

Other types of hazards are not covered by these guidelines. For example, it may be necessary to consider the physical risks arising from such things as pressurised equipment, electricity, heights and confined spaces. Information on the correct use of equipment should be obtained from the supplier or manufacturer.

4.2 Assessing risk

A risk assessment is based on information supplied on the label and MSDS, and involves an inspection of the actual work location and work practices. In some situations it may be necessary to obtain specialist advice.

Risk assessments should be reviewed if:

- information on an MSDS or a label changes
- work practices change
- a new pesticide is introduced
- need is indicated by the results of health surveillance or monitoring
- five years have lapsed since the last assessment.

4.3 Types of risk

Risk assessments should cover risks to:

- users, from the preparation and use of pesticides where the emphasis is on controlling contact with pesticides (see section 6)
- others, from spray drift, residues, contamination and disposal (see specific control measures in section 8)
- persons, property and the environment by accidental events, such as spillage or fire in storage or transport (see section 12).

Under occupational health and safety legislation, it may also be necessary to assess other risks such as those arising from manual handling and the use of plant and equipment.

4.4 Controls

Controls are methods that eliminate or reduce the risks of pesticide accidents and exposures. Maintenance of controls should be part of any plan to introduce a pesticide into the workplace. The continuing use and effectiveness of controls should be monitored (see section 7).

4.5 Recording risk management - register of pesticides

Maintaining records is an important part of risk assessment and management.

The starting point is a register, which includes a listing of all pesticides in a workplace. Hazardous substance legislation specifies that the minimum information that must be included in a register is a list of all hazardous substances used or produced in the workplace and the relevant MSDS. There are several ways of forming a register (see section 15).

5. Identification of hazards - sources of information about pesticides

Information about the hazards of a pesticide can be found on the container label and the MSDS. This information should be used to assess risks and establish control measures. Additional advice can be found in other publications produced by the registrant of the pesticide (contact details can be obtained from the container), which give advice on the intended method of use of the pesticide and suitable application equipment.

5.1 Labels

The purpose of labelling is to ensure the correct identification, use and disposal of a pesticide. Labels must be kept fixed to the container at all times and maintained in a condition so that the label information can be clearly read.

Hazardous substances, pesticides, dangerous goods and poisons all have similar labelling provisions. Pesticide labels show the active components and indicate other hazardous or dangerous components (for example, by showing the dangerous goods ‘diamond’ symbol).

Some containers of pesticides have labels that contain extensive information in booklet form that is inserted into an envelope or pocket on the container. These booklets should be returned to the envelope or pocket after use for future reference. Some gas cylinders have tags that display the relevant information.

A person using a registered pesticide must read the instructions on the label before preparing or using the pesticide. The instructions covering the concentration of the mixture and the application must be followed. Each pesticide registered for sale has been approved for use under conditions specified on the label. These conditions should be considered when estimating and controlling risk.

Bulk tanks and stores containing dangerous goods may require labels and notices under dangerous goods storage legislation (see section 11). Generally, these dangerous goods requirements do not apply to pesticides when mixed and diluted for use.

Some state or territory legislation provides further advice on requirements of containers for use in relation to pest management activities.

5.2 Material safety data sheets (MSDS)

MSDSs provide additional information to that on a label. An MSDS for a substance provides information on:

- all components of the product and their potential hazards
- the health hazards of the concentrate
- safe storage and handling
- emergency procedures (to assist planning)
- decontamination measures.

Use the MSDS for guidance on the safe use and storage of pesticides. Other persons working in the area being sprayed or treated may also need to see the MSDS. Advice on the correct use of equipment should be obtained from the supplier or manufacturer. Some pesticide formulations are intended for use with specific methods of application with the correct equipment. Label directions should be followed.

5.3 Obtaining and provision of MSDS

5.3.1 Suppliers

Hazardous substance legislation requires that a supplier must provide an MSDS for each hazardous substance on request and for the first supply.

Resellers, such as persons who supply to trade only, must provide an MSDS. Trade sales include substances intended solely for use in workplaces, and so an MSDS must be provided on request.

5.3.2 Employer

An MSDS must be made available to all employees who may be exposed to the pesticide in use.

Employers must ensure that an MSDS is available for each hazardous substance used by each employee. This access may be required:

- during training (including induction)
- during consultation before the introduction of a new substance
- when an employee is working with or near the pesticide
- when a new pesticide is introduced to the workplace.

At each work site, or designated work area, where hazardous substances are stored or mixed, ensure that:

- employees have easy access to a MSDS for each substance stored or used
- the most recent edition of the MSDS is available
- any information retrieval system for MSDS is kept in working order
- employees are trained on how to access and understand the information.

5.3.3 Self-employed

Self-employed persons should note that to meet their responsibilities to others under occupational health and safety legislation, they must make an MSDS available to others at the worksite. Contractors should make an MSDS available to others at the site, including employers and their workers, and explain any particular safety precautions required or hazards associated with the substance to be used, transported or stored.

5.4 Labelling of pesticide application equipment

Where there is no state or territory legislation specific to the labelling of pesticide application equipment, the following is recommended:

- When the pesticide is in the application equipment, labelling is generally not required where:
  - it is filled with a pesticide that has been prepared or diluted ready for immediate use
  - it will be controlled by the pest management technician
  - there is a low risk of any other person misusing it.

If the pesticide is not used immediately, you should refer to your state or territory licensing authority for further advice on labelling of application equipment.

This includes all fixed and portable tanks carried on a vehicle.

5.5 Decanting of pesticides

If pesticides must be transferred from one container to another (decanted), both containers must be properly labelled for that particular pesticide and the batch number of the decanted product recorded on the receiving container.

A pesticide should be decanted only into another container suitable for the pesticide. Some pesticides can react with the container if the wrong type of container is used.

Do **not** decant a pesticide into a food or beverage type container.

Some state or territory legislation provides further advice on requirements of containers for use in relation to pest management activities.

5.6 Container that is not properly labelled

A person should not use a registered pesticide taken from a container that does not have attached to it an APVMA approved label, or a label for which the APVMA issued a permit. All unlabelled pesticide containers and their contents should be identified or disposed of promptly. If the contents cannot be identified, the container should be labelled: 'CAUTION DO NOT USE. UNKNOWN SUBSTANCE' and disposed of as soon as practicable as hazardous waste by a commercial contractor (see sections 8 and 12).

6. Risk assessment

Employers are required to assess the health risks of all work with pesticides. A risk assessment would be required for each task, including mixing, decanting, spraying or other application methods, transportation and storage. This includes pesticides that are in current use and new pesticides that are introduced, as well as risks to seasonal and casual workers and to non-employees at the worksite.

Self-employed persons, employees and contractors must assess the risk to other persons working at the site and visitors. Employers and self-employed persons have a duty of care to members of the public who may come into contact with the pesticide or with pesticide residues after application. Persons in control of a workplace should pass relevant information on to others in workplaces, including tenants and owners, who may come into contact with spray drift or residue or who occupy a building that has been treated.

Even though pesticides are assessed for health hazards before registration, risks vary with the way a pesticide is used. Consequently, it is important to assess the health and safety risks arising from the actual circumstances of use at the workplace, including the method of application, equipment used, proximity to other people, animals, food and water supplies, and factors such as the temperature and wind. Using a product under an APVMA permit may require a thorough risk assessment as the label precautions may not apply. In such cases, the permit conditions must be strictly adhered to.

Use the risk assessment to examine the effectiveness of current controls.

6.1 Generic risk assessments

Hazardous substances legislation provides for generic assessment of several locations where the hazard and degree of risk are comparable, such as where the same pesticide is used in a number of different locations in similar circumstances. This may be relevant to contractors who do the same work in different locations. Generic assessments will help simplify the overall task of assessment of the different locations.

To apply generic assessments it is necessary to ensure that the work practices, equipment and materials are the same in each case.

It may be necessary to specify controls, such as not doing work when weather conditions are unfavourable, for example, specify in the risk assessment wind speeds that are too high or too low.

6.2 Exposure pathways

The three main ways pesticides can enter the body are through inhalation, skin contact and ingestion. Consider each possibility separately in the risk assessment.

Inhalation is an important exposure pathway. Exposure occurs by breathing in airborne concentrations of a pesticide in the form of an aerosol, vapour, dust or mist.

Skin contact is the most common exposure pathway in occupational poisoning. Many pesticides are readily absorbed through the skin or eyes. This must be considered when mixing and using sprays. Formulations that contain solvents and surfactants may increase skin absorption. Higher temperature or humidity may also increase absorption.

Ingestion (swallowing) is normally a minor exposure pathway, except in the cases of accidents such as splashing, while mixing or applying pesticides, and is a common method of poisoning in young children. Smoking or eating while handling pesticides is often the cause of ingestion. Dusts and aerosols can be breathed in and then swallowed. Pesticides must never be stored in food or beverage type containers.

6.3 Exposure standards and air monitoring

Hazardous substances legislation requires employers (and self-employed) to prevent or minimise exposure, of employees or other persons in the workplace, to hazardous substances. This exposure must not be greater than the relevant exposure standards in the WorkSafe publication *Exposure standards for atmospheric contaminants in the occupational environment.* Not all hazardous substances have an exposure standard. If an exposure standard has been allocated, it is given in the MSDS. The standard may relate to an individual component of the spray mixture such as the solvent or surfactant.

For pesticides, strict compliance with the safety directions on the label and MSDS will normally ensure that exposure is sufficiently controlled so that quantitative measurement will not be necessary. If spraying releases vapour or aerosol, the airborne exposure standard may be exceeded and control measures, such as respirators or other personal protective equipment, should be considered to protect the health of workers. Proximity to other people and things, such as food, must also be considered.

If there is uncertainty about risks, it may be necessary to measure airborne concentrations and compare these with the mandatory exposure standards. This is possible where inhalation is the main route of entry. This may be useful for enclosed locations, such as indoors, and may be necessary when using a product under an APVMA permit. Care must be taken when applying these products to outdoor situations where conditions are variable, such as changes in the wind.

These measurements are normally undertaken and interpreted by a qualified occupational hygienist.

6.4 Eight step risk assessment

Use the eight-step plan below to carry out a risk assessment.

Step 1: Decide who will do the assessment and where

Labels, MSDS and other supplier information provide the basis of the risk assessment.

It may be necessary to seek expert advice if there is any doubt about the degree of exposure. A more complex risk assessment may need to be conducted (see step 7).

Step 2: Identify the pesticides in use

Identify and categorise pesticides from the labels and MSDS. Stock lists and inventories are useful, at the time of purchase.

Identify, from the label and MSDS, the pesticides and other chemicals that are classified as:

- dangerous goods
- hazardous substances
- scheduled poisons.

These classifications can be identified through the symbols or words on the label or container or, for those that are hazardous, from a statement on the MSDS.

Step 3: Identify persons at risk and their tasks

Divide up the work activities into units for assessment, based on the different pesticides used. Look at each job or task using each pesticide separately. For example:

- mixing or preparing
- spraying or other methods of application
- handling in the storage area
- loading and handling on vehicles
- the occupants of treated buildings or those likely to come into contact with hazardous residue after spraying
- cleaning, adjusting and maintaining equipment
- entry into dusty areas such as roof cavities which could be contaminated with other hazards (such as asbestos) and including enclosed spaces with poor air circulation
- other persons entering treated areas, such as in parks and greens or home owners.

Use the list in section 6.7 as a checklist of high risk activities.

Step 4: Review label information

Review the information contained on the label and for each pesticide find out:

- the degree and type of hazard (for example, flammability, toxicity, risk of cancer or foetal damage)
- exposure pathway likely from use
- recommended control measures and safety precautions
- first aid and emergency contacts, for example, poisons information.

The degree of the hazard is indicated on the label and in the MSDS (see Table 1). Do not just focus on the active ingredient. The most toxic component of the pesticide mixture may not be the active constituent but could be another component, such as the surfactant or solvent.

Check the existing control measures and compare these with the recommendations on the MSDS and label.

Table 1

An extract of poisons schedules taken from the *Standard for uniform scheduling of drugs and poisons.*

Poisons are classified according to the schedules in which they are included. The following is a general description of schedules 5, 6 and 7. For the legal definitions, however, check with your relevant state or territory licensing jurisdiction.

Poison schedule	Signal words on main label	General description
Schedule 5	CAUTION	Substances with a low potential for causing harm, the extent of which can be reduced through the use of appropriate packaging with simple warnings and safety directions on the label.
Schedule 6	POISON	Substance with a moderate potential for causing harm, the extent of which can be reduced through the use of distinctive packaging with strong warnings and safety directions on the label.
Schedule 7	DANGEROUS POISON	Substances with a high potential for causing harm at low exposure and which require special precautions during manufacture, handling or use. These poisons should be available only to specialised or authorised users who have the skills necessary to handle them safely. Special regulations restricting their availability, possession, storage or use may apply.

Step 5: Estimate exposure and risk

To estimate exposure and risk, assess the work site and review the work practices and existing control measures. A pesticide exposure checklist is provided in Appendix 4. It is a guide only and can be modified.

To estimate exposure, consider:

- evidence of existing contamination - visible dust or fumes, dust on surfaces, skin or clothing, visible leaks, spills or residues, odour
- direct contact with the substance
- likelihood of splashing
- history or symptoms of exposure (including evidence of individual susceptibility)
- vapours or hazardous residues likely to remain after the application of the pesticide
- spray drift and risk of contamination to adjacent areas
- hot working conditions where absorption through skin occurs readily as a result of increased blood supply to the skin.

Also consider the physical risks of flammability - such as decanting near sources of ignition.

Step 5.1: Health risk

The health risk is a combination of hazard (toxicity) and dose. Dose is the amount entering the body as a result of exposure. The dose is affected by:

- length of exposure
- pesticide concentration.

Step 5.2: The likelihood of exposure depends on a number of factors:

- the hazard itself
- the type of work to be done (task)
- how the work is to be done.

The following factors need to be considered:

- The work area, for example, is it an enclosed space or well ventilated?
- The type of pesticide being used - is it a powder, vapour, liquid or gas?
- What effect will the environment have on the pesticide being used?
- Are workers using the personal protective equipment prescribed on the label or in the MSDS?
- Are engineering controls, such as mechanical ventilation, currently used?
- How often is the pesticide used?
- What is the likely airborne concentration of the pesticide in comparison to the exposure standard?
- What is the likelihood of spray or dust drift and factors such as particle size, wind speed and temperature?
- Can people access a treated area or come into contact with hazardous residues?
- Will there be contamination near areas where food is produced, stored or used?

Step 5.3: The length of exposure

The length of exposure to a pesticide directly affects the dose absorbed by the body. The pest management technician will need to consider the possibility that other people will be exposed to the pesticides they use when treating an area. This may include home owners, office workers, pedestrians and domestic pets that have access to the treated area.

Pest management technicians who use a pesticide every working day will have a much higher potential exposure than people who only use pesticides occasionally.

Contact time and contact area of skin are important in estimating the dose. Skin contact can be estimated by observing the actual circumstances of the work activity.

Is the appropriate personal protective equipment being used? For example, if a knapsack spray is being used and a pesticide leaks out of the unit and over clothing, the pest management technician will be in contact with the pesticide until the contaminated clothing is removed. If the clothing is not immediately removed, this will increase the length of time when skin absorption may occur.

Step 6: Determine the significance of the risk

The pest management technician will need to determine how significant the risk is. A 'significant risk' means that the work could adversely affect the health of people in the workplace. The pest management technician should consider all pesticide applications in terms of possible health effects. Appendix 5 includes an example of a risk assessment of hazardous substances form. It is a guide only and may be modified for use.

Significant risk is indicated when:

- the chance of exposure to the pesticide is high
- the potential health effects are severe, in which case both the chronic (long term) effects and the acute (short term) effects should be considered. The MSDS should be consulted.

Note: Particular groups are more susceptible to pesticides than others. The pest management technician should consider the effect that the pesticides may have upon the elderly, the very young, household pets and native wildlife.

The four categories of risk are:

1. No significant risk: it is unlikely that the work will adversely affect the health of people in the workplace. This may be an appropriate conclusion if all the label and MSDS instructions and personal protective equipment are followed, or in the case of using a product under an APVMA permit.

2. The risks are significant but effectively controlled: consider if there is a need for monitoring or health surveillance.

3. The risks are significant, and not adequately controlled: consider immediate control measures or redesigning the process, and then determine if monitoring or health surveillance is required. Seek expert advice if needed.

4. There is uncertainty about the risks: there is not enough information about the hazards or there is uncertainty about the degree of exposure. Seek expert assistance, or more information, to do a more detailed assessment.

Step 7: Identify actions resulting from conclusions about risks

If the work evaluation shows that exposure is, or can be, readily controlled in accordance with the MSDS and label, then it could be concluded that there is no significant risk to health. The risk assessment is complete. This will usually apply to pesticide use if the label and MSDS directions have been followed. The record of assessment may just be a notation on the relevant MSDS in the register (kept by the employer or self-employed person). Risk assessments on specific jobs may be noted on job cards.

It may be necessary to include a note on the conditions of use such as not using the pesticide when it is too hot or too windy.

Where the assessment indicates that there is a significant risk to health:

- select appropriate measures to achieve and sustain control (see section 7)
- ensure that those control measures are properly used and maintained
- arrange induction and training, especially in areas where the assessment indicates risks are not easily controlled
- determine if air monitoring or health surveillance is required, and whether or not it is needed on a regular basis. See section 6.5 for more advice on health surveillance.

Air monitoring may be useful in fixed locations, such as indoors. Such measurements are normally undertaken and interpreted by a qualified occupational hygienist. However, it may be appropriate to assume that they are exceeded, for example, if an aerosol or suspension in the air is produced, in which case the risk assessment could be based on that assumption.

Step 8: Adopt control measures and review regularly

Record conclusions about risk and controls. Details of recording an assessment of risk and the controls chosen are covered in the next section on control measures (section 7.3). Once controls are introduced their use and effectiveness should be reviewed regularly.

6.5 Health surveillance

Advice on when health surveillance is necessary should be sought from an appropriate medical practitioner. This includes specialist occupational physicians; state and territory regulatory authorities may have listings of appropriate medical practitioners.

The following advice is a guide to when such advice may be required and the steps to take.

Health surveillance of workers is the health assessment of a person to identify any changes resulting from exposure to a pesticide. It may involve a medical examination and taking blood or urine samples. Adverse results would indicate the need to revise the risk assessment and implement better control methods.

Health surveillance is not the primary means of managing occupational exposure and is not an alternative to control measures. It is used to:

- check control measures by confirming that the absorbed dose is below the accepted level (the dose may arise from either use or contact with treated areas or pesticide formulations)
- detect biological effects requiring cessation or reduction of exposure
- collect data to evaluate the effects of individual exposure over a period of time (for example to see if it is increasing or decreasing).

6.5.1 Requirements under hazardous substances legislation

Legislation may require that health surveillance be undertaken for employees using the following pesticides:

- organophosphate pesticides (identified by the word 'anti-cholinesterase compounds' on the label or MSDS, but not carbamate pesticides)
- inorganic compounds such as arsenic trioxide.

The legislation may also require health surveillance for employees who have been identified as having a risk to their health, if a suitable method of examination or biological test is available.

Tests are available for some herbicides, and pesticides containing heavy metals, such as chromium. The effect of exposure to anticoagulant rodenticides, such as bromadiolone or brodifacoum, can be detected by measuring the ability of blood to clot.

6.5.2 When health surveillance should be undertaken

Health surveillance should be undertaken in the following circumstances:

- At the onset of poisoning or symptoms of exposure. Poisoning can result from either a single large dose or through cumulative effects of small doses over a number of days. If pesticide poisoning is suspected, always arrange for a health check the same day, or as soon as practicable.
- Where it is suspected a worker may have been exposed to pesticides or where poisoning may have occurred, whether or not symptoms have been noticed.

When using organophosphate pesticides:

- establish a baseline at a time when there has been at least four weeks without exposure. This is to establish a baseline cholinesterase level in each individual worker prior to exposure where organophosphate pesticides are used. It is recommended that blood be taken again within a few days of using the pesticide. To assist the medical practitioner, each worker should bring a written record of the names of the pesticides and dates of use (a copy of the record of use form).
- for very occasional use no test is needed unless the person has symptoms that could be related to exposure. Very occasional use is a period of half a day per month or less.
- intermittent use is two or three days at a time, all day, with gaps of a month or more between use. A test during a period of use provides feedback on the effectiveness of control measures.
- Seasonal use is four days per week or more, for periods of a season. Test early in the season (for example, on the last day of the first week, when work practices have settled) to check on the effectiveness of control measures. The medical practitioner will judge the need for further tests based on the nature of the work and previous test results.

Public health (environmental health) and/or occupational health and safety inspectors may order health surveillance for persons suspected of pesticide exposure including:

- employees
- licensed pest management technicians who are self-employed persons.

6.5.3 Arranging health surveillance

An appropriate medical practitioner should be consulted for advice and to supervise the health surveillance program. If health surveillance is required, the employer should:

- consult with employees and inform them of the purpose, procedures and need for health surveillance
- seek advice from the medical practitioner or the state/territory occupational health and safety regulator on how frequently it should be done (the medical practitioner must follow the health surveillance procedure listed in the legislation if the risk assessment shows a significant risk of exposure to these chemicals)
- arrange for appropriate people to carry it out (for example, a person to take blood or urine samples)
- provide the supervising medical practitioner with access to a list of hazardous substances and pesticides for which the health surveillance is required, the MSDS, the exposure standards and discuss the results of the risk assessment reports
- make acceptable arrangements for employees to participate in the health surveillance program
- pay the expenses of health surveillance for employees (including wages)
- keep records of health surveillance in a confidential file. The local state or territory occupational health and safety legislator should be contacted to determine the personal health records required to be kept, the length of time these must be kept for and the procedure for record maintenance should the business close.

Advice for medical practitioners is provided in publications and guidelines published by the National Occupational Health and Safety Commission (formerly known as WorkSafe Australia) on their website www.nohsc.gov.au. Health surveillance forms for workers, using organophosphates for example, are included in Appendix 6. These are a guide only and may be modified for use.

6.5.4 Results of health surveillance

The interpretation of health surveillance results is the role of the medical practitioner, whose advice must be followed by the employer.

If adverse results are obtained from health surveillance, action must be taken. These results can be used to identify where excessive exposure has occurred. Jobs and tasks must then be examined and control measures introduced or reviewed to prevent recurrence. More frequent testing or examinations may be necessary for individuals showing an adverse effect.

6.7 High risk activities - a checklist

Some activities create a high risk because they expose people to situations in which the pesticide can be easily absorbed. These must be given special consideration when conducting a risk assessment. Examples are when pesticides are handled or used in the concentrated form (for example, when mixing) or when application techniques may cause excessive exposure.

The following list of tasks includes examples of activities that could be included in a checklist:

- mixing and loading
  - handling liquids or dust in concentrate form
  - pouring concentrates under awkward conditions where splashes are highly likely.

- bulk tanks
  - filling tanks above head height increases risk of spills if manually performed
  - operator is wet from waist down when adjusting nozzles
  - operator blows or sucks blocked nozzles.
- blower misters
  - blower misters create a fine mist which remains in still air for long periods or could drift to neighbouring properties, high exit velocity from blower can cause widespread contamination.
- knapsack and other hand held equipment
  - leaking equipment wets back, buttocks and legs of the operator, hot working conditions increases operator absorption, incorrect use of handpiece can cause spraying onto feet and legs leading to a high skin absorption rate
  - spray drift, particularly when applying fine droplets
  - spraying above shoulder height may cause the operator to be covered by blow back of mist leading to exposure by skin contact and inhalation.
- enclosed spaces or confined spaces. When entering buildings, where atmospheric contaminants and asphyxiants will not disperse quickly, consider:
  - the asphyxiation risks arising from the use of gaseous propellants and dispersants such as carbon dioxide
  - higher temperatures in areas such as roof cavities may increase the risks
  - entry into building cavities such as under-floor areas or roof spaces may include confined spaces
  - hazards posed by mould spores, sewerage leaks, gas leaks and vermin
  - there may be a need to check oxygen levels
  - exhaust fumes from pumps powered by petrol or diesel driven internal combustion engines may create an additional hazard.
- fumigation
  - fumigants are gaseous and lethal by inhalation. Consider the risk of hazardous residues in area or material fumigated and the need to control entry by non-authorised persons.

6.8 Further advice on assessing health risks

Additional advice on the assessment of health risks is provided by your state and territory occupational health authority and the National Occupational Health and Safety Commission *Guidance note for the assessment of health risks arising from the use of hazardous substances in the workplace* (www.nohsc.gov.au).

7. Risk management

Legislation requires control measures to be adopted that eliminate or minimise the exposure of any person to a pesticide (if classified as a hazardous substance), as far as is practicable.

The purpose of control is to eliminate or reduce exposure to pesticides in the actual circumstances of use. It may be necessary to adopt more than one control measure to reduce exposure. Also consider controls that reduce environment impact, including the reduction of waste. Take the registration conditions on the label of pesticides into account when considering the practicality of control measures.

Workplace exposures should always be kept as low as reasonably achievable even where occupational exposure is quantified and exposure standards met.

7.1 The control hierarchy

The hierarchy of control will help people decide the best way to control risks. The hierarchy ranks control measures from the most effective to the least preferable. However, not all types of strategies will be practicable and a combination of various types of controls may be needed for best exposure protection.

Methods of risk control should be considered and adopted in the following order:

7.1.1 Elimination and reduction

The use of a pesticide can be reduced or eliminated by removing the pest through manipulation of the environment, resulting in environmental benefits due to less waste and residue. Consider practices that use:

- better hygiene
- removing pest breeding areas and harborage
- pest proofing/exclusion and checking incoming products
- biological control and beneficial insects
- resistant plant or grass varieties wherever they present a feasible alternative
- physical barriers
- biotechnology and the use of an integrated pest management (IPM) systems, which can reduce the amount of pesticides used. Pesticides that are not registered with APVMA should not be used. Pesticides must not be used in a manner contrary to the label directions. Some pesticides require a permit or are restricted in their use under state/territory control of use legislation.

7.1.2 Substitution

It may be possible to substitute a pesticide with a less hazardous one without leading to less effective pest control. Examples of substitution include:

- using a less toxic pesticide
- using a less volatile pesticide
- altering the physical form, such as replacing an emulsifiable concentrate formulation with a granular formulation or using encapsulated products to reduce handling risks
- purchasing only returnable or reusable containers.

7.1.3 Isolation

Isolation of the process can be achieved by distancing it from the rest of the workplace or by installing a physical barrier between the process and any person or entity likely to be affected. Examples of isolation include:

- separate areas used for storing, mixing and preparing pesticides with limited access to all but properly authorised employees
- pesticides in a vehicle should be isolated from the driver and passengers during transport
- storage in a separate room or building.

7.1.4 Engineering control

An engineering control is a system that:

- minimises the generation or emission of a pesticide
- suppresses or contains a pesticide within a controlled area
- delivers the pesticide in a way that reduces misting.

Types of engineering controls include the choice of application equipment, a local extraction ventilation system or an automated process. Consider engineering controls for work indoors if air contamination is likely, for example, in a greenhouse.

Examples of engineering controls include:

- using an extraction ventilation equipment (ventilator) to remove vapours after treatment
- changing nozzle parameters or droplet size or spray pattern
- using a purpose designed workplace with good natural or mechanical ventilation (adequate air movement)
- use of building ventilation systems ensuring air is ducted externally and not recirculated
- use of low volumes of pesticide when treating buildings
- closed measuring and loading systems.

7.1.5 Administrative controls and work practices

Administrative controls include work practices that can be adopted to control risks. These controls include taking weather conditions into account, the time of work, hours of work restrictions, who does the work and who has access to a work area or pesticide store. Administrative controls are implemented to ensure safe work practices are adopted in the workplace and that the environmental impact is minimised.

Examples of administrative controls include:

- reducing the number of people exposed and excluding non-essential personnel from the area, for example, treating an office building after normal working hours
- limiting the time period of exposure for an employee
- prohibiting eating, drinking and smoking when handling pesticides
- providing and ensuring the use of adequate facilities for effective decontamination, such as washing facilities
- ensuring that outdoor tasks are done at the most appropriate time of day to minimise heat stress or spray drift

- correctly calculating the area to be treated and the amount of spray required (this has the added benefit of minimising the amount of pesticide used and costs)
- only mixing the amount of pesticide necessary for the job
- notifying other persons, such as neighbours, the public who use parks or greens or other building occupiers, other visitors to the site, staff or users (for example, by the use of signs)
- placing signs around treated areas indicating the hazards; these should be posted and remain in place until the product has dried or dissipated and should be placed for schedule 6 and 7 chemicals (refer to individual state or territory legislation for specific signage requirements)
- establishing procedures for disposal of waste and containers (see section 8.4).

7.1.6 Personal protective equipment

Personal protective equipment (PPE) should be used as specified on the product label and only be relied upon where it is not possible to control exposure by one or more of the above measures or, even when used, control is not adequate. In some circumstances, PPE is the only practicable method. PPE should be used:

- according to instructions on the label
- in an open field situation where engineering controls are not available
- when mixing, decanting or spraying
- in some circumstances as a back-up for other control measures.

7.2 Selection, use and maintenance of personal protective equipment

Employers should ensure that:

- all PPE is appropriate for the task (see section 7.2.1) as nominated on the label
- PPE is of the appropriate size and fit for the employee
- PPE is readily available, clean and in fully operational condition
- employees are trained in the use of the PPE, including the selection and maintenance (and, where appropriate, when to discard disposable PPE)
- any maintenance such as cleaning is carried out according to manufacturers' instructions
- the likelihood of a secondary injury risk due to wearing PPE, such as skin rash or heat stress or dehydration caused by unsuitable clothing and hot conditions, is assessed. A suitable control measure would be avoiding chemical use during the hottest part of the day.

7.2.1 Selection

Protective equipment in use should have the appropriate Australian Standard (AS) number on the label (some states or territories may require other occupational health and safety approvals). Various standards not only provide specifications but also indicate the type to be selected. Guidance is given below.

Use labels and MSDS as a guide. If in doubt about suitability, ask the supplier for a recommendation. Also check the supplier's specifications.

7.2.2 Eye protection

Eyes are the most vulnerable parts of the body to chemical or physical damage, and the most difficult to repair surgically. In any area where there is the possibility of flying objects or where chemicals might splash, appropriate eye protection must be worn. This could be in the form of safety glasses, goggles, a face shield, or full-face respirator. Splashes are most likely when mixing, pouring and loading application equipment.

Select eye protection that complies with *AS 1337 Eye protection for industrial application.*

AS 1336 Recommended practices for eye protection in the industrial environment gives the requirements for the selection of the correct type of eye protection. If ordinary spectacles are worn, it may be necessary to wear coverall safety glasses or a face shield over the top. Prescriptive eyewear is covered in AS 1336.

7.2.3 Gloves, aprons and other equipment

Gloves should always be worn during cleaning operations to protect the skin from the corrosive effects of cleaning agents. Gloves may also be necessary when decanting or preparing chemicals. Check the MSDS for glove type. Also confirm with the glove supplier the suitability of the glove provided for the chemical used. Rubber gloves are usually not sufficient.

Select gloves which comply with *AS 2161 Protective gloves and mittens*.

7.2.4 Respiratory protection

In some situations, respiratory protection will be necessary. An example is the use of pesticides, where the pesticide label specifies the use of a respirator or protective equipment. Sometimes the labels will use phrases such as ‘avoid inhalation of spray, or vapour or dusts’.

Select respirators that comply with *AS/NZS 1716 Respiratory protective devices.*

Respirators should be used, stored and maintained in accordance with the *AS/NZS 1715 Selection, use and maintenance of respiratory protective equipment.* A respiratory program conforming to section 7 of *AS/NZS 1715* would ensure maximum efficiency of the respirators.

7.2.5 Footwear

Footwear is an important safety item. Good soles provide a sound grip preventing accidents caused by slipping. Footwear can also protect feet from mechanical or chemical damage. Gumboots are often practical when carrying out preparation or application where splashes are possible.

In some cases, safety footwear is necessary. Select footwear that complies with *AS 2210 Occupational protective footwear part 2 specification.* This standard provides information on the suitability of footwear, sole designs and materials for different types of surfaces.

Where impact, cuts or pesticide spills are probable, the footwear should comply with *AS 2210 (Part 1)* which provides information on selection, care and use.

7.3 Recording control measures

As part of the risk assessment report, records should be maintained that confirm that exposure to pesticides is being controlled. The local state or territory occupational health and safety legislator should be contacted to determine the personal health records required to be kept, the length of time these must be kept, and the procedure for record maintenance should the business close.

7.3.1 Content of the record

The record should show the degree of the risk and how decisions were made concerning:

- the selection, design, construction or adoption of any control measure used
- the selection and use of any PPE
- the arrangements for training to ensure an appropriate application procedure is followed and the equipment is correctly used (unless the operator is licensed)
- suitable weather conditions and restrictions on the pesticide use if the weather is unfavourable.

7.3.2 Form of the record

For most users a simple report attached to the original MSDS or written on the MSDS and dated would be sufficient (this must be kept by the employer or self-employed person for at least five years).

For example, if the MSDS for a pesticide states:

'Do not use in a confined space.'

'Wear a respirator or avoid inhalation of vapours'

then, in response, the MSDS should be noted as follows:

'Do not use in a confined space unless certain ventilation methods are used.'

'Details of the respirator/canister selected, including manufacturers advice.'

For a large operation, where the same pesticide may be used by groups of employees involved in different tasks and where there are many work units, the assessment record should include many of the items in the following list.

The range of topics on a complex assessment report include:

- description of work unit
- name of assessor or assessment team
- personnel covered by the assessment
- work area, date and time of assessment
- a list of chemicals used in that work unit
- summary of the task(s) of the work unit
- risk identification including all risks to health and safety
- conclusions about the level of risk
- recommendations for control measures and training
- signature of assessor
- signature of employer.

In addition, the day-to-day use of control measures can be recorded on the same form used for recording chemical use. This will help people check that controls are being used. Controls can be recorded on a risk assessment record form.

8. Recommended pesticide control measures

8.1 Fumigation controls

Persons carrying out fumigation should apply all of the procedures, including warning notices, in *AS 2476 General fumigation procedures,* except when using ethylene oxide. The standard refers to a number of NHMRC codes of practice for specific uses of certain fumigants. These should be followed where applicable.

Employers must ensure that fumigation is carried out by a licensed fumigator only (see section 2.8).

The risk assessment should examine the risks of hazardous residues and the need for precautions when opening fumigation rooms, cabinets or transport containers.

8.2 Spray drift

For the purposes of these guidelines, 'spray drift' refers to all pesticide drift or trespass onto non-target areas. As legislation relating to spray drift is constantly under review, you should carefully check your state and territory regulatory jurisdictions for the most recent information.

To reduce risks from spray drift:

- check wind speed and direction (see section 8.3)
- use a formulation or product that reduces spray drift (if available) or an alternative application method (if permitted on the label)

Note: Some formulations are more volatile than others. Low volatility formulations are preferable in areas where exposure of others nearby is possible, or where elevated temperatures may occur after spraying. Dust can ionise and suspend on a dry day, creating drift.

- choose equipment that is designed to reduce or eliminate drift, if permitted by the pesticide label. Equipment should be used according to the manufacturer's instructions and be chosen for the particular pesticide and target requirements.

For each type of application equipment, variables such as nozzle type, aperture, hydraulic pressure and height of delivery, will affect the size and movement of droplets produced and the efficiency with which they impact on the target. Application equipment needs to be set up to maximise pest control efficiency and to minimise spray drift.

Spray volume should be controlled by changing nozzles and not by varying pressure. A higher pressure generally forms a finer spray that may drift excessively.

Droplet drift is reduced if the release height is as low as possible. However, if the release height is too low it may be difficult to obtain a uniform spray pattern.

Non-drip valves and recirculating systems should be used where possible. Pressure gauges should be maintained and functional. Ensure that the spray rig is calibrated accurately and frequently.

Calibration and maintenance should be undertaken regularly and include checks of nozzle performance and wear, pressure, the accurate working of gauges and regulators, spray output, filters, and the speed of ground rigs.

8.3 Weather conditions and time of day

If conditions are not suitable to minimise potential risks from drift, the spray operation should be delayed until conditions are suitable. This should be included in a generic risk assessment.

It is preferable to use technologically superior spraying equipment, which may allow spraying to occur in a wider range of weather conditions without creating a drift hazard.

Ideally, relative humidity should be high and temperature not greater than recommended for the use of the product.

Rain may cause run-off of the pesticide, and this should be considered in the assessment of environmental risk. Check the rain-fast period. Pesticides must not be applied if rain is likely to wash the pesticide from the site of application.

8.3.1 Field application

If spray drift is possible (for example, an aerosol will be produced), ensure that spraying is done in cross-wind conditions rather than directly into or with the breeze. Spraying should only take place when the breeze is blowing away from an area that may be at risk from drift. High temperatures may cause smaller droplets or vapourisation which may increase spray drift.

8.3.2 Treatment in and around buildings or small areas

Calm stable weather conditions may be appropriate, and preferably early in the morning or late in the afternoon when the public, and insects such as bees, are at minimal risk.

8.3.3 Treatment in public places

The highly visible nature and risk of exposure to the public of pesticide application in public places means that there is a clear expectation that pest management technicians will recognise the *Guide for spraying in public places* (see Appendix 7) as a minimum standard for these operations.

8.3.4 Treatment in and around schools and school grounds

The use of pesticides in schools can invoke a high degree of community concern. Further information and guidance can be found in the National Environmental Health Forum Monographs *Pesticide use in schools and school grounds* (enhealth.nphp.gov.au/council/pubs/pdf/pestschl.pdf).

8.4 Waste and disposal

Seek advice from the state or territory Environmental Protection Authority (EPA) about means for disposal of unwanted pesticides, for example, chemical collection programs.

Never dispose of pesticide waste or rinsates down drains, toilets, sinks, gully traps or into bodies of water.

Never dispose of pesticide wastes or containers into public litter bins, private garbage bins or leave out in the street for municipal collection.

8.4.1 Minimising disposal

Minimisation of use is an important way of reducing potential environmental and health harm. Consider eliminating or reducing pesticide use (see the hierarchy of control in section 7):

- choose the least persistent product available for the application (this may not be an option where persistence of a residue is required for effective treatment)
- purchase pesticides in reusable or returnable containers, if possible, or try to obtain recyclable containers
- cooperate with other commercial users to minimise the amount purchased
- minimise the number of articles (such as measuring containers, funnels and stirrers) used in preparation and application
- add rinsates to the tank of pesticide to be used.

8.4.2 Surplus or unregistered pesticides

The options in descending order of preference are:

1. If the pesticide is not registered, contact the manufacturer for advice on disposal.
2. If the pesticide is registered, use the pesticide for its intended purpose.
3. If the pesticide is registered and the container is sound and the label intact, offer surplus pesticides to another commercial operator who needs them for an approved use.
4. If the pesticide is not labelled or not usable, arrange for collection by a waste contractor and, if using a disposal contractor, ensure that the contractor is licensed to handle the pesticide to be removed.
5. Label and store securely, pending one of the above actions.

8.4.3 Burial of wastes on owner's property

Check local EPA or local government legislation and requirements before burying pesticide containers on a property.

8.5 Disposal of empty containers

Empty containers must be rinsed and disposed of or recycled in the manner recommended on the label. If manually rinsed, they should be triple rinsed.

Disposal of drums becomes a lesser environment issue if they are rinsed correctly.

8.5.1 Triple rinsing

An effective manual rinsing procedure is:

1. On emptying the contents into the spray tank, drain the container for an extra 30 seconds after the flow has reduced to drops.
2. Fill the container with clean water or suitable solvent to about 20– 25 per cent of its capacity.
3. Replace the cap securely.
4. Shake, rotate, roll and/or invert the container to wash all of the inside with rinse.
5. Remove the cap and add the rinsate from the container to the spray tank. Drain the contents for an extra 30 seconds after the flow has reduced to drops.

Steps 1 to 5 must be carried out three times.

6. Check the container cap, thread and outside surfaces and, if contaminated, rinse with a hose and hand wash to ensure all product residue is removed.
7. Let the container dry completely and replace the cap.

Various rinsing attachments and transfer systems that have flush and rinse cycles are available.

Containers should be returned to the supplier when they are marked 'returnable' or the label specifies return to point of sale. Where rinsed containers are stored, ensure that lids or bungs are removed to prevent re-use and that containers are secure. If not returned to the supplier, it may be appropriate to puncture or crush the container to ensure it cannot be used again.

Containers should not be burned. Explosions may occur and the smoke and fire products may be a risk to health. A container eligible for the drumMuster program should be retained uncrushed and taken to a drumMuster collection centre. Note that a crushed container cannot be inspected by a drumMuster inspector for cleanliness.

The decision on whether a landfill will accept a properly cleaned pesticide container rests with the landfill operator. Holders of such waste should discuss the disposal of these items with their local government authority.

For further information contact your local government, AVCARE, or consult the AgSafe *Standard for effective rinsing of farm chemical containers.*

8.6 Re-entry periods

The re-entry period is the period in which a treated area must not be re-entered by unprotected persons, including members of the public, after the application of a pesticide. This should be considered as part of the risk assessment. Workers and others must be advised of the correct time-lapse to avoid contact with hazardous residue. Consider this during the risk assessment, the choice of pesticide formulation and method of application. Note that it is intended that some treatments leave a residue.

If the re-entry period has been established, it should be stated on the label or other advice from the supplier.

In field applications, where no re-entry period is stated, wait at least 24 hours, subject to the risk assessment of hazardous residue, unless appropriate PPE is provided and worn as intended. For grasses, use the rain-fast period of a pesticide or the drying of the pesticide on the target as guides.

After the re-entry period has been observed, some PPE may be necessary if some skin contact or other exposure to hazardous residues is possible. Appropriate PPE should be indicated in the risk assessment.

Buildings should be ventilated according to the label and MSDS directions following the application of pesticide indoors. Dispersal of solvent vapours should be considered as part of the risk assessment. The atmospheric concentration of contaminants must not exceed the exposure limits after applying a pesticide indoors. It is important to consider this in relation to re-entry to the building by other persons.

8.7 Handling and contact with residues

Exposure may occur when:

- persons enter treated areas to carry out further work
- handling or packing dipped or treated materials or unloading containers
- dusts are produced when using mechanical equipment or bulk transfer
- fumigants are emitted during transfer for example from bulk silos
- unloading fumigation rooms or transport containers.

Evaluate the need for suitable PPE, such as gloves and respirators, in such situations.

8.8 Control of risks to other people at or near the worksite

Pesticides are often applied in places such as houses, workplaces, parks and clubs where the protection of other people is an important objective.

Rules to follow are:

- Do not allow others, including children, in the vicinity of the areas where pesticides are being sprayed or mixed, to prevent contact or exposure.
- Pesticides must be kept away from all unauthorised persons, including children. Keep vehicles carrying pesticides locked or supervised.
- After the application of pesticides indoors, make sure that hazardous residues are not left on surfaces or suspended in the air so that building users will not come into contact with excess pesticide residues which still present a hazard. For example, observe a re-entry period. Consider this during the risk assessment.
- Control spray drift risks. Notify the owner or occupier of the site prior to the commencement of spraying. Prior to commencement of treatment, advice should be given to the person in charge of a workplace to enable other users to be informed in an appropriate way. Persons in charge should consider advising all the tenants in a multi-tenanted building.

This advice should include the:

- type of pesticide to be sprayed
- time of spraying
- area to be sprayed
- precautions to be observed prior to application (such as emptying kitchen cupboards)
- re-entry period and other risks such as run off contaminating the environment
- hazards and risks associated with the pesticides to be used
- use of signs or barriers in multi-tenanted buildings, parks or greens.

Building or site owners can be notified at the time of providing a quote or job sheet.

Owners or occupiers should notify occupants or users by the use of signs or temporary fencing.

8.9 Checking controls and assessment of personal exposure

Check that procedures follow the label and MSDS recommendations. Use the following points as a checklist.

8.9.1 Preparing, mixing and handling concentrate

While preparing, mixing and handling concentrate:

- Care should be taken when handling concentrates and dusts, the time of greatest risk.
- Wear appropriate protective clothing and equipment and have an adequate supply of filters for the respirator.
- Preparation and mixing should be done in a well-ventilated area, for example outside, not in a garage.
- Stand up-wind while opening, pouring and mixing.
- Do not eat, drink or smoke.
- Avoid contact with the skin, eyes or mouth. If contamination occurs, wash the affected area immediately with copious amounts of water (if indicated by the label).
- Avoid preparing excess spray by effective and accurate calibration of equipment and calculation of the amount to be used (in accordance with the label instructions).
- The measuring and mixing process is the best time to wash empty pesticide containers. All pesticide containers should be triple-rinsed (see section 8.5.1). Where they are not recyclable, punch a hole to render them unusable. The water used to rinse the container should be added to the spray tank during mixing.
- Spills should be cleaned up immediately.
- Pesticides should be prepared in the application tank, or on a drip tray over an impervious surface, at least 15 metres from any waterway.

8.9.2 Using pesticides

While using or handling pesticides, you should:

- Avoid inhalation of pesticide vapours or dust.
- Avoid skin contact. If contact does occur, wash with copious amounts of water (check safety directions on label).
- Not eat, drink or smoke.
- Manage spray drift by carefully assessing wind direction and strength. Never spray in high winds, assess for weather conditions, and stop spraying if weather conditions deteriorate (see section 8.2).
- Avoid, as far as practicable, pesticide run-off to ensure that adjacent properties, persons, flora, fauna and waterways are not affected.
- Take steps to ensure the safety of occupants or users of treated facilities, buildings or areas (for example factories, grain storage areas). If you feel ill, or start developing symptoms, stop work and seek medical attention.
- Not use your mouth to blow or suck pipes or nozzles to clear them.
- Never leave unsecured pesticides unattended.

8.9.3 Clothing and equipment

When choosing PPE in accordance with the label, MSDS and risk assessment, use of the following items should be considered:

- cotton overalls buttoned to the neck and wrist
- pesticide resistant water-proof aprons when mixing or pouring concentrate
- gloves (pesticide resistant), preferably gauntlets, to be worn when handling or using chemicals
- a wide brim washable hat; if contaminated, the hat should be removed immediately and washed before re-use
- boots such as rubber or PVC; waterproof leggings provide additional protection; leather boots can absorb pesticide and cause exposure during high volume applications
- face shield or splash proof goggles when mixing or pouring; when spraying consider non-ventilated goggles
- an appropriate approved respirator, especially if exposure to spray drift is likely
- full face air-line respirator when working in enclosed spaces, depending on label and MSDS self-
- contained breathing apparatus for entry into confined spaces.

8.9.4 Washing and equipment clean-up

Regular cleaning and maintenance avoids the build up of residues in and on equipment. Contractors or employees who work at sites where there is no available water may need to carry water to enable prompt and proper clean-up.

Where appropriate after each application:

- remove any residue on external surfaces of equipment
- PPE should be worn during cleaning and must also be cleaned after use
- any pesticide washed from the tank should be reused or sprayed over the area just treated
- water used for hosing down equipment and machinery should be collected in a sump or soakaway pit
- remove and wash any contaminated protective clothing and equipment
- wash or shower thoroughly with water and soap (employers should provide adequate washing amenities including water, soap and towel
- at the end of each day's operations change clothes, store and wash work clothes separately from other laundry (a special container may be needed for contaminated clothing)
- vehicles and equipment used to apply herbicides should be washed at least 15 metres from any waterway
- vehicle mounted spray equipment should be washed down on a hardstand area
- washdown water must not flow or percolate into any waterway or area of high water table.

8.9.5 Use and maintenance of respirators

- Ensure that the correct type of filter is used (see section 7.2.4).
- A maximum of eight hours of actual use is recommended. However, if the odour or taste of the pesticide is noticed, the filters should be changed immediately. See suppliers' recommendations for maximum filter use times.
- Ensure that the respirator is tested for a good comfortable seal on the face by following these procedures:
  - place the hands over the filter(s) and inhale; in the case of a good seal, the face-piece will collapse inwardly, and no leak can be heard
  - if air enters, tighten the fit by adjusting the headband.

Note: a proper fit cannot be achieved if the person has a beard or facial hair where the seal touches the face.

- Face-pieces are available in different shapes and sizes, it is important to ensure the type used provides a satisfactory seal.
- Face-piece, valves, filters and hoses must be in good condition and well maintained.
- Ensure the inside of the respirator is not exposed to any pesticide during use or storage.
- After use, remove the filters and wash the face-piece using warm water and soap.
- Many respirator filters absorb other fumes and pesticides in the air even when they are not being worn. This will shorten the use life of the filter. Keep the filter in an air-tight container when not in use.
- The respirator and filter(s) should be placed in a sealed plastic bag or container and stored in a clean dry place, away from the pesticide storage area.
- Each pesticide user should have their own face-piece. Respirators should not be shared, borrowed or lent without proper sterilisation.

9. Training

Under hazardous substances legislation, employers must provide induction and ongoing training for employees who are likely to be exposed to hazardous substances. The training must be commensurate with the risk to health and provided in an appropriate manner. Employers may, under some legislation, be liable for any breaches of legislation, where the breach resulted from the activity of employees.

Other legislation requires pest management technicians to be trained. This may be through an approved course, in addition to on-the-job training and supervision. A person may work and train, providing they are supervised by a licensed pest management technician. Training is also specified for fumigators. Other persons will have received appropriate training as part of an accredited course (for example, greenkeeping).

However, additional on-the-job training may be required, as outlined below.

9.1 Provision of training by employers

The detail and extent of a training program will depend on the hazards and risks associated with the pesticides used and the work procedures involved, and should be appropriate to the duties performed. This should be considered when doing the risk assessment. Consider fitting this in with other aspects of occupational health and safety training in the workplace.

An example of suitable training (for those not covered by the pest management licensing legislation) on the use and application of pesticides, is the Farm Chemical End User Training Course known as ChemCert training.

Induction training into the circumstances and equipment used in the workplace is necessary for new employees. Training should be considered when an employee is assigned to a new task or a new work area.

Training can be formal or on-the-job. It should take into account literacy levels, work experience and specific skills required for the job. It should be practical and hands-on where this is relevant. For example, hands-on training should be used for the use and fitting of PPE.

The following persons should have appropriate training:

- employees who are required to store or use a pesticide
- employees who are supervising others working with a pesticide
- those who are required to work in close proximity to where pesticides are stored and used, or who may come into contact with hazardous residue
- everyone likely to be involved in fire or emergency action
- casual or seasonal workers who may use or come into contact with a pesticide or hazardous residue.

9.2 Legislative requirements

A training program should cover:

- duties under occupational health and safety Acts and regulations, dangerous goods, public health and environmental legislation
- hazardous substances legislation and these guidelines
- advice regarding the pesticides that may be stored or used in the workplace
- the legal significance of a label and any restrictions resulting from it
- relevant and up-to-date legislation or guidance material relating to the transport, use, storage and disposal of pesticides.

9.3 Information on a substance

Where relevant, training should also cover:

- Recognising and interpreting the information on a label including:
  - safety directions and risk phrases
  - poison scheduling, dangerous goods and hazardous substances classifications and symbols
  - first aid and emergency procedures, and special directions
  - application rates, compatibility and withholding periods for pesticides.

- The importance of being able to:
  - know the parts of the label and the significance of the information in each part
  - extract and interpret information from a product label
  - relate the hazard to the Poison Schedule, dangerous goods classification and risk phrases
  - calculate the amount of pesticide to use to give the correct application rate.
- How to obtain access to the MSDS, and the information each part of the MSDS can provide.
- The selection, use, maintenance and storage of safety equipment required.
- Any work practice or procedure to be followed in any aspect of the use of a pesticide in the workplace, including any appropriate Australian Standard, codes of practice, WorkSafe code or NHMRC code to be followed (for example, for fumigation).
- Re-entry periods.

9.4 Personal safety

Where relevant, training should also cover:

- the exposure pathway into the body by pesticides
- the risks posed by pesticides commonly used in the particular industry
- the precautions to be taken for a particular task, including the use of machinery
- the risk assessment process
- control measures and maintenance
- the correct selection, use, fit and maintenance of protective equipment and clothing, including respirators and filters
- exposure controls when working in a truck or tractor cabin
- air monitoring (where indicated by the risk assessment)
- health surveillance (where indicated by the risk assessment)
- first aid and incident reporting procedures
- entry into enclosed spaces and any special precautions
- entry into confined spaces (where applicable) and the use of self-contained breathing apparatus.

9.5 Application of pesticides and environment safety

For those employees who apply pesticides, training should also cover the application of pesticides including:

- identification of pests
- selection of appropriate equipment
- importance of accurate and even application
- nozzle selection
- calibration for efficient application and reduction of spray drift
- calculation of the amount of pesticide to give the desired application rate

- decontamination steps for equipment and clothing
- disposal of waste
- maintenance and cleaning of equipment
- protection of others at the worksite.

9.6 Record keeping

Training should also cover the preparation and appropriate use of a pesticide application record sheet and storage records.

9.7 Emergency procedures

Training should also cover:

- protection of human life
- potential for environment damage
- spill control and initial measures to establish control in emergencies
- decontamination of the affected area or article
- first aid or incident reporting procedures where injury or illness to other persons has occurred
- arrangements for calling emergency services.

9.8 Review of training

Regularly review training when there is a change in:

- any hazard information available
- the risk assessment
- a work practice
- a control measure.

9.9 Records of training

The training program record should include:

- the names of persons providing and receiving training and date of attendance
- an outline of the course content
- where applicable, a pest management technician's licence number, permit number, or fumigation licence number and/or details of any courses they have attended (for example, certificate numbers for TAFE courses or end user courses).

Training records must be kept for five years.

10. Overview of transport and storage

Storage risks relate to emergencies, such as fires, spills, accidental exposure or ingestion. Accidents and spillages may occur when opening containers, handling or mixing pesticides (for advice on spills see section 14.1).

The exposure of any person close to an incident may be high. This can be controlled by reducing the likelihood of an incident occurring, and establishing emergency procedures to reduce its severity.

Some pesticides are classified as dangerous goods and have specific storage requirements above a certain amount. The requirements of the *Australian code for the transport of dangerous goods* (ADG Code) do not usually apply to the transport of pesticides in the course of a business using pesticides.

Pest management vehicles are unlikely to carry the volume of concentrate necessary to require dangerous goods placarding.

Vehicles used for pest management activities should be designed so that the pesticides are separated from the driver and other occupants, and restrained. Utilities or tray-top vehicles provide an in-built separation. Commercial vans or station wagons should incorporate an airtight partition between the seating area and the load carrying areas of the vehicle. The barrier should be able to restrain flying objects.

11. Pest management vehicles

When transporting pesticides:

1. Personal protective equipment (PPE), a change of clothes (in case of contamination), food, drink and medications, should be carried in such a manner to prevent contact with any pesticide in clean, sealed containers such as the driver's cabin.
2. Floors and walls of parts of vehicles carrying pest control equipment and pesticides should be impervious to pesticides. Restraints and buffers that are not impervious to pesticides should be readily disposable and replaceable.
3. The internal and external surfaces of the vehicle, and the surfaces of pesticide containers and spray equipment, should be kept free of pesticide contamination.
4. The vehicle should be kept locked to prevent public access to pesticides or equipment, and the load should be protected from the weather.
5. Do not accept or load damaged or leaking containers. Secure the load and limit its movement.
6. Gas cylinders should be restrained in an upright position. Gas cylinders should not be transported or kept inside a vehicle such as a van, without adequate and permanent cross-flow ventilation (for example a special ventilated compartment). Cylinders must not be carried externally to the vehicle. (External means outside the frame of the chassis work. Mounting on a trailer drawbar is acceptable.)
7. Tanks on the vehicle containing a mixed/diluted poison and/or hazardous substance should be labelled (refer to section 5.4).
8. Vehicles should be constructed in such a way to contain any leaks or spills.
9. State and territory legislation usually requires that vehicles used by a pest management technician displays, in letters and numbers that are clearly legible:
   - the name of the pest management business
   - the contact details (phone number) of the pest management business.

11.1 First aid requirements

First-aid requirements are usually found in each state/territory occupational health and safety legislation. Some jurisdictions are more prescriptive than others in relation to the requirement for employers to maintain a first aid kit and may specify the contents of that kit. However, whether prescribed by law or whether contained in a guide from the relevant occupational health and safety authority, a suitably equipped first aid kit should be kept in each pest control vehicle.

It is highly recommended that all persons involved in pesticide application be familiar with the first aid treatment of pesticide poisoning.

12. Storage of pesticides

The pest management technician should be familiar with State or Territory legislative requirements regarding storage of pesticides.

12.1 Storage quantities

A designated storage area should be used for pesticides, irrespective of the quantity stored. This may be a cabinet, part of an existing store or a purpose-built store. Reducing the quantity of pesticides stored is one of the most cost effective ways of reducing the risk. Some pesticides have a specified shelf life and do not retain their efficacy beyond the date. If this is the case, it will be stated on the label. Otherwise read the date of manufacture and use the oldest first. Storage of pesticides that are classified as dangerous goods of Class 3 should meet certain requirements, regardless of the quantity stored (see section 13.2).

12.2 Storage risks

When assessing risk for stored pesticides, consider:

- the quantity of pesticide to be stored
- the duration of storage
- the dangerous goods class, packaging group and the characteristics of the pesticides with respect to toxicity, stability and compatibility (see the MSDS or supplier)
- the requirements for separation of pesticides from other classes of dangerous goods, for example, Class 5 oxidising agents, such as solid pool chlorine, are incompatible with many other substances
- spillage control, fire rating and ventilation of the building
- emergency procedures and equipment needed in the store (consult the MSDS, ADG Code and local government requirements on fires and other emergencies)
- separation from other stores of chemicals; suitable separation distances, the isolation of spills and suitable emergency procedures should be considered even when small quantities of pesticides are stored for short periods; minimising purchasing not only saves purchasing costs but also minimises disposal costs
- limiting access to authorised persons only and maintaining a manifest of chemical identities and quantities stored; and keep storage facility locked at all times
- adequate natural or mechanical ventilation.

12.3 Storage design

A secure separate building, or a segregated area within a building, with:

- adequate natural or mechanical ventilation
- impervious floors with drainage into a sump
- concrete door sills
- concrete or block walls to a sufficient height to contain spills
- impervious shelving (or spill control trays on shelves)
- a lockable door
- a clean up kit for spills
- access to water for washing and cleaning
- storage area must comply with AS 2507 – 1998.

The walls (or bund) and door sill should be high enough to contain a spillage of 25 per cent of the total volume of packaged liquid pesticides, and at least 110 per cent of the largest package.

Provision should be made for drainage of spills and clean up water into a sump or pit that can contain the pesticide, clean up materials and the wash water. A supply of wash water should be readily available.

Good natural cross-flow ventilation should be provided with vents in opposite walls, above bund height. Substances should be stored at a cool temperature to prevent deterioration. The products should be protected from moisture so that packaging and labelling does not deteriorate (especially cardboard containers).

Check the MSDS for information on pesticide compatibilities and other advice in relation to storage. In some cases, specific Australian Standards for the location, design and separation distances of the store will apply.

12.4 Location, security and access to storage

When siting storage areas consider the following:

- locating the store or storage area separate from other buildings, dwellings, storage of foodstuffs or workplaces
- preventing accidental or unauthorised access to the storage area, such as keeping the store locked and fitting a child proof latch
- the risks to children, visitors to the workplace, and members of the public who are not familiar with the hazards of pesticides
- the dangerous goods class and packaging group of the pesticide stored and any separation distances required from other buildings or stores (including outdoor bulk tanks and drums of dangerous goods).

12.5 Pesticide containers

Pesticides must be stored in their original containers. However, if the container is damaged or leaking, transfer the contents into another correctly labelled container. Soft drink bottles or food containers must never be used for storing pesticides.

Ensure that all original labels remain legible and on the container.

Containers should be regularly checked. Containers that are leaking or corroded should be secured by placing in another container, such as an over-drum, or removed. Over-drums should be labelled appropriately.

Keep containers closed or the lids on while in storage. This helps to reduce dust and/or solvent vapours building up in the storage area. Do not store liquids above solids.

Some state and territory legislation provides further advice on requirements of containers for use in relation to pest management activities.

12.6 Emergency procedures

To assist with establishing emergency plans and procedures, refer to labels and MSDS for information about:

- emergency equipment such as the correct fire extinguishers (There should be at least one powder extinguisher within easy reach, but outside of the bunded area. The extinguisher should be serviced every six months. Check requirements of your local government authority.)
- training for emergencies
- clean up procedures
- flammability
- first aid kit.

The contact number for the National Poisons Information Centre, 13 11 26, should be displayed at the telephone nearest to the store, so that prompt advice can be obtained if someone is poisoned.

Some state and territory regulatory authorities have notification requirements regarding pesticide spillages and/or incidents.

12.7 After assessing storage facilities

Following the assessment of the risks of storage of pesticides:

- take steps to remedy any high risk areas and situations as soon as possible
- obtain a dangerous goods storage licence if necessary (see section 10)
- establish and display emergency procedures or review existing procedures
- improve the quality of storage areas where it is practicable
- make plans for the construction of future storage areas if necessary.

12.8 Storage assessment record content

In a storage assessment record, note down how all the factors in this section have been addressed. A single site assessment record should be adequate in most workplaces or storage sites.

13. Dangerous goods legislation - storage and licensing

13.1 Classification of dangerous goods

Licences or notification may be required for those pesticides which are classified as dangerous goods and are:

- toxic gases (poisonous gases Class 2.3)
- flammable liquids (Class 3)
- toxic substances (poisons Class 6.1)
- flammable solids (Class 4)
- corrosives (Class 8).

Dangerous goods licensing requirements are also determined by the packaging group within classes 3, 4 and 6.1. Check your state or territory jurisdictional authority for specific legislation. They will also be able to provide you with a dangerous goods licence application form if required. It includes notes on how to fill out the form and a contact number for further inquiries. It also includes guidance on licensing amounts for classes of dangerous goods not covered in these guidelines. Special storage conditions may apply to those who need a licence. A national dangerous goods licensing standard is gradually being adopted across Australia.

Some fumigants may be classified as Class 4.3 or may fall into another class in some forms. For example, the grain fumigant aluminium phosphide is Class 4.3 (PG I, if UN 1397) in the form of crystals, but in the form of waxed pellets and tablets it is Class 6.1 (PG II or III). The hazard of Class 4.3 is that they evolve flammable or toxic gases on contact with water. This makes firefighting with water particularly hazardous.

13.2 Conditions for storage and handling Class 3

Flammable and combustible liquids should be stored in accordance with *AS 1940 - The storage and handling of flammable and combustible liquids,* regardless of the amount. This applies to packages, such as drums, as well as bulk tanks and pesticides of risk Class 6 and sub-risk Class 3. All above-ground bulk tanks must have spillage control or bunding. The storage requirements depend on whether it is a residential site, warehouse, factory, on open land and so on.

The following conditions apply regardless of the amounts stored:

- The storage must not be near heating or ignition sources such as stoves, heating appliances, light switches, welders, or similar ignition sources.
- Packages must be kept closed when not in use. Opening a package of flammable liquid or decanting (pouring) from it should be carried out in a well-ventilated area, away from potential ignition sources and away from combustible material or residues.
- Flammable liquids must be moved from storage to the point of use in a manner that minimises the possibility of spillage or fire.
- Flammable and combustible liquids must not be stored or used where they may jeopardise escape from a building in the event of fire.
- Persons who handle flammable and combustible liquids must be trained in the hazards involved.
- Any spillage must be cleaned up immediately and the materials used in the clean-up must be disposed of properly.
- Any materials which may interact dangerously if mixed, must be kept apart to minimise the possibility of interaction.

- Packages must not be pressurised to transfer contents, unless they have been specifically designed for this.
- Packages should be stored on shelves or in cupboards. Do not keep liquids above solids.
- Flammable liquid signs for the storage area of under 100L are not required, but they are recommended.

13.3 Warning signs

Store the goods in a secure area marked at the door with the appropriate signage as recommended in the ADG Code and AS 2507-1998. There should also be a sign – 'NO SMOKING - KEEP FIRE AWAY' at the entrance. If the goods are kept in only one part of the building, put another diamond sign next to or above the actual storage area.

Those liquid poisons (Class 6.1) that have a sub-risk of Class 3 (flammable) can be stored with flammable liquids (Class 3, see above). Look for both diamondson the container.

14. Planning emergency procedures

Employers should develop procedures for the management of spills, fires, first aid and the notification of accidents.

In an emergency, the safety of all personnel must be ensured. If the emergency cannot be dealt with immediately, raise the alarm and call the fire authorities.

Use an MSDS to plan emergency procedures. Check the pesticide compatibility with water and the firefighting equipment and first aid, which may be required.

14.1 Spills

To avoid spills, do not use leaking containers or equipment.

Manage spills by applying the following the three Cs:

1. CONTROL the spill

2. CONTAIN the spill

3. CLEAN UP the spill.

1. CONTROL the spill

Controlling the spill involves two primary activities:

1. Isolate the spill. This involves protecting people and animals in the immediate spill area and could include the following:
   - wear PPE and work up-wind of the spill
   - evacuate non-essential persons from the immediate area of the spillage, keep bystanders away (for example, rope off the area)
   - ensure that the spill site is not left unattended
   - notify relevant supervisors and/or authorities (for example, police if spill is on a public road)
   - keep flames away from spill area.

2. Take immediate steps to control the flow or spill at its source. This could include the following:

- close valves and turn off pump
- manage leaking containers by either positioning container to minimise further spillage or decant leaking containers into suitable temporary container.

2. CONTAIN the spill

Containing the spill involves minimising the spread of spill any further environmental contamination. This could include the following:

- blocking drains with plastic, sand dykes
- using absorbent material or soil to stop further flow
- using a shovel or other equipment to dig a temporary containment trench (especially if waterways are threatened).

3. CLEAN-UP the spill

Cleaning up the spill involves two primary activities:

1. Removing the spilled product from the site. This could involve the following steps:

- in the case of liquids, using absorbent material to soak up excess spillage
- in the case of dry chemical spill, minimising dust drift by slightly wetting (if appropriate) or covering with plastic sheeting
- shovelling contaminated material into drums or heavy duty plastic bag (whichever is appropriate)
- disposing of contaminated materials at an approved site.

2. Decontamination of the site. This can include:

- decontamination of the spill site using appropriate neutralising agents. It may be necessary in some cases to either remove soil or dilute traces of concentrates if appropriate
- decontamination of cleanup equipment. Any absorbent materials such as rags and mops should be disposed in the same manner as the spillage material
- decontamination of PPE and persons involved in the clean-up.

Information on appropriate decontamination can be sourced from Material Safety Data Sheets, chemical manufacturers and agencies such as AgSafe.

14.2 Fires

Where a fire occurs in a pesticide store, first attempt to control the fire. If you cannot safely control the fire:

- call the fire fighting authorities
- if the fire cannot be quickly extinguished with the dry chemical extinguisher, then the appropriate fire control agent, usually a water fog or foam, should be used (water can be used to keep containers cool)
- instruct bystanders to keep up-wind of the area and not enter the fire area unless suitably protected
- be prepared to have a pesticide manifest to give to the fire fighting authorities
- wear a full face respirator with a self contained air supply, which is considered minimum protection, for entry to the fire area
- consider the option of leaving the fire to burn and limiting its spread.

14.3 Emergency treatment - first aid procedures

- Contact the Poisons Information Centre on 13 11 26 for specific advice. There may be a need to call Emergency '000' (or from a mobile telephone '112').
- Read and follow the instructions on the label.
- If the sufferer is unconscious, do not induce vomiting and do not administer anything by mouth.

First aid is only the first step, and is not a substitute for full professional medical treatment. Following first aid, take the sufferer to a doctor or hospital along with the pesticide container or label or MSDS.

- If the pesticide has been spilled on the skin or clothing, remove the clothing immediately and thoroughly wash the skin with water or soap. Do not scrub the skin harshly and do not use ointments, powders or medication unless instructed to do so by a doctor.
- If the pesticide has been inhaled, get the sufferer to fresh air and keep them lying down, warm and calm. If breathing stops, use mouth-to-mouth resuscitation.
- If the pesticide has splashed into the eye, hold the eyelid open and gently wash the eye with clean running water for 15 minutes. Cover the eye with a clean cloth and seek medical attention immediately.
- If the pesticide has been swallowed, read the instruction on the label - it will direct whether or not vomiting should be induced. Examples where vomiting should not be induced are pesticides which are petroleum based ('emulsifiable concentrate') or corrosive (acid or alkali).

14.4 Notification of illnesses

Occupational health and safety legislation in each state and territory requires the notification of any work-related illness suffered by an employee resulting in death or a continuous period of at least seven days (this number may vary with each state and territory) during which the employee is unable to perform their usual duties or is absent from work.

Employers must keep various records relating to their employees. Check with your state or territory regulatory authority as to record keeping requirements.

15. Records

15.1 Legal requirements for record keeping

Record keeping requirements may vary between state and territory regulatory authorities. You should check to ensure your record keeping is adequate.

To assist risk management, accurate records should be kept of all aspects related to the assessment and control of pesticide storage and pesticide use. Records should be made on prepared forms so that they can be easily completed and understood. Computerised records are acceptable, providing employees are trained to use these.

For pesticides classified as hazardous substances, it is compulsory under the hazardous substance legislation for employers and self-employed to keep:

- a list of all pesticides and any other hazardous substances stored or used on the site
- a register of MSDS (Material Safety Data Sheets), each one of which must be less than five years old.

Employers must also keep the following records:

- risk assessments indicating a significant risk to employees at the workplace
- records of health surveillance
- records of monitoring
- records of training.

Suitable record forms should be available from your occupational health and safety authority. Keeping these records is good practice, even if it is not a legal requirement. Some of these may be combined with other occupational health and safety records for the workplace, for example records of training or health surveillance.

15.2 Types of records

15.2.1 Register

A register is a listing of all hazardous substances in the workplace. This includes a list of the pesticides kept in a central store or a pest control vehicle. The minimum contents of a register are a list of all hazardous substances used or produced in the workplace, and the relevant MSDS. An example of a form (inventory form) to list these pesticides is in Appendix 8. This form is a guide and may be modified for use. Dangerous goods should also be included on the register. For pesticides purchased and used on the same day, a record of use is a sufficient list (see section 15.2.2, but MSDS must be kept).

15.2.2 A record of pesticide use form

Details should be kept of:

- pesticide(s) and chemicals used
- the name of the person who applied the pesticide
- date of use
- address or location of area where the pesticides were used
- application rates
- mixing rates

- location of the application areas (within premises or property)
- the target pests.

A method of keeping these records is for pest management technicians to retain copies of quotations, job sheets, invoices or receipts as a record of this information, providing all relevant details are shown.

15.2.3 A storage site assessment record

A storage site assessment record covers all activities related to the storage of pesticides, including facilities for mixing and disposal. It should show how the risk factors are addressed. It should be reviewed yearly or when a new pesticide is introduced or a work practice is changed. It can be combined with the register if these are the only pesticides in use.

15.2.4 Pest management vehicle assessment record

Where a vehicle is in regular use, a record should be kept of:

- how PPE is kept in the vehicle
- the condition of containers, tanks and equipment
- checks for contamination of surfaces.

15.2.5 Record of the exposure risk assessment

A separate record of risk assessments should be kept.

15.2.6 Record of health surveillance and monitoring

Health surveillance and/or monitoring records must be kept for the period specified by each state or territory if undertaken for employees. Records should indicate names of workers, dates of medical examinations or tests and whether or not there were any adverse results.

The medical practitioner will also keep a record.

15.2.7 Fumigation

Additional declarations, notices and records are required, as described in section 5 of *AS 2476 General fumigation procedures for fumigation.*

15.2.8 Training

Records of training of employees must be kept for the period specified in each state or territory.

15.3 Location and access of records

Records should be located conveniently so that managers, employees and employee representatives can access the information. Suitable storage systems for records include book entry records, microfiche or computerised databases.

Note that Commonwealth privacy laws may prohibit access to and distribution of records without the consent of the person to whom the records pertain.

Public health, occupational health inspectors and/or emergency services have the right to examine the records of employers, which are required to be kept by hazardous substances legislation and should be accessible.

15.4 How long to keep records

Records are a valuable reference in case of incident or when an illness is reported. With good records, it can be shown that correct procedures were developed for storage and use of pesticides in the workplace. This is particularly important for long term (chronic) health effects.

Where an employee or other person is injured as a result of pesticide exposure, an employer may be asked to show what action had been taken, or what instructions had been given regarding an employee's use of pesticides.

MSDS for a pesticide should be kept and updated at the workplace while that pesticide remains in use and for five years after use has ceased.

Application procedure records and health surveillance records must be kept for the period specified by each state or territory (up to 30 years) because some health effects may take a long time to become evident. If the business ceases to trade, any health surveillance records should be offered to the appropriate state or territory authority for storage.

All required records, including risk assessments and action records, have minimum retention periods. You should refer to your local state or territory regulatory authorities for specific information.

Appendix 1- Publications

AgSafe drumMUSTER (2002), *Agsafe standard for effective rinsing of farm chemical containers,* A joint initiative of NFF, Avcare, VMDA, and ALGA, Canberra.

National Registration Authority for Agricultural and Veterinary Chemicals (2001), *Code of practice for labelling Agricultural Chemical Products,* Australian Government Publishing Service, Canberra.

New South Wales Environment Protection Authority (2004), *Environmental guidelines - assessment, classification and management of non-liquid wastes,* Department of Environment and Conservation, Sydney.

Federal Office of Road Safety of the Commonwealth Department of Transport and Communications (1998), *Australian code for the transport of dangerous goods by road and rail (6th edition),* Australian Government Publishing Service, Canberra.

National Health and Medical Research Council (2007), *Standard for uniform scheduling of drugs and poisons No. 22* (SUSDP), Australian Government Publishing Service, Canberra.

National Occupational Health and Safety Commission (1995), Adopted national *exposure standards for atmospheric contaminants in the occupational environment [NOHSC:1003 (1995)]*, Australian Government Publishing Service, Canberra, (revised from time to time).

National Occupational Health and Safety Commission (1999), *List of designated hazardous substances [NOHSC:1005 (1999)]*, Australian Government Publishing Service, Canberra, (revised from time to time).

National Occupational Health and Safety Commission (2004), *Approved criteria for classifying hazardous substances [NOHSC:1008 (2004) (3rd edition)]*, Australian Government Publishing Service, Canberra, (revised from time to time).

National Occupational Health and Safety Commission (1989), *National code of practice and guidance note for the safe handling of timber preservatives and treated timber [NOHSC:2003 (1989)]*, Australian Government Publishing Service, Canberra.

National Occupational Health and Safety Commission (1994), *Guidance note for the assessment of health risks arising from the use of hazardous substances in the workplace [NOHSC:3017 (1994)]*, Australian Government Publishing Service, Canberra.

National Environmental Health Forum Monographs General Series No.4, (1999) National *standard for licensing pest management technicians,* National Environmental Health Forum, Adelaide.

Appendix 2 - Australian Standards

AS/NZS 1336:1997 Recommended practices for occupational eye protection.

AS/NZS 1337:1992 Eye protectors for industrial applications.

AS/NZS 1596:2002 The storage and handling of LP Gas.

AS/NZS 1715:1994 Selection, use and maintenance of respiratory protective devices.

AS/NZS 1716:2003 Respiratory protective devices.

AS/NZS 1940:2004 The storage and handling of flammable and combustible liquids.

AS/NZS 2161.1:2000 Occupational protective gloves – Selection, use and maintenance.

AS/NZS 2210:1994 Occupational protective footwear - Guide to the selection, care and use.

AS/NZS 2210.5:2000 Occupational protective footwear – Specification for occupational footwear.

AS 2476-1981 General fumigation procedures.

AS 2507-1998 The storage and handling of agricultural and veterinary chemicals.

AS/NZS 2865:2001 Safe working in a confined space.

AS 3660.1-2000 Termite management- New building work.

AS 3660.2-2000 Termite management - In and around existing buildings and structures – guidelines.

AS 3780-1994 The storage and handling of corrosive substances.

AS 4332-2004 The storage and handling of gases in cylinders.

AS 4349.3-1998 Inspections of buildings - Timber pest inspections.

AS/NZS 4452:1997 The storage and handling of toxic substances.

AS/NZS 4501.2:2006 Occupational protective clothing – General requirements.

Appendix 3 - Matrix of state and territory licensing requirements

The existing jurisdiction regulatory requirements				
State	**NSW**	**VIC**	**SA**	**QLD**
Legislation *	Occupational Health and Safety Reg (2001) see Chapter 9	Health (Pest Control) Regulations 2002 under Health Act 1958	Regulations under the Controlled Substances Act 1984	Pest Management Act 2001 and Pest Management Regulations 2003
Licensing authority	NSW WorkCover	Department of Human Services	Department of Health	Queensland Health
Business registration	No	No	Yes	No
Operator certificates	1. General operator 2. Fumigator	1. Technician - pesticides (excluding fumigants) formulated for the control of arthropods, rodents, birds and fungi, used to control pests (other than pest animals). 2. Technician – pesticides formulated for the control of pest animals. 3. Technician – pesticides in the form of fumigants. If licensee is a trainee, this is indicated	Full pest management technician's licence. Endorsements indicate type of work and type of pesticides authorised for use. Photo ID card issued.	Pest management technician may be licensed to undertake: ■ pest control activity (including timber pests) ■ pest control activity (not including timber pests) ■ fumigation activity subject to specified site environments.
Trainee permit	No	Same as above with trainee status indicated after licence number and 'under the supervision of a licensed technician'.	Limited pest management technician's licence. Direct or indirect supervision. No photo ID card issued.	No trainee licences. Unlicensed person may work under supervision of pest management technician for training purposes.
Scope of legislation	Domestic/commercial application only. Fumigation covers all applications	Domestic/commercial application. DPI licence businesses to undertake pest control (including fumigation and pest animal control) for the purposes of agriculture, horticulture, weed control and water management.	Any pest control work using APVMA registered pesticides undertaken for 'fee or reward'. Exemptions available for minor use.	Domestic/commercial application. DPI licence for agricultural/ horticultural purposes.

The existing jurisdiction regulatory requirements				
State	**TAS**	**WA**	**NT**	**ACT**
Legislation *	*Agricultural & Veterinary Chemicals (Control of Use) Act 1995*	Health (Pesticide) Regulations 1956 under *Health Act 1911*	*Poisons and Dangerous Drugs Act 1983*	*Environment Protection Act 1997*
Licensing authority	Department of Primary Industries, Water and Environment	Department of Health for both Fumigation and Pesticides.	Department of Health and Community Services	Environment ACT Department of Urban Services
Business registration	Yes	Registration required for commercial pesticide firms and fumigation firms	No	Business authorisation
Operator certificates	Commercial operator licence (business) and individual certificates of competency issued for various chemical category users (including fumigation) and individual agricultural spraying permits issued for specific uses.	General operator licences issued dependent on training. Separate licensing required for fumigators at this stage.	1. General operator (can be endorsed to include fumigation)	No
Trainee permit	None, however 'provisional certificate of competency can be issued under supervision for 3–6 months until required accredited training completed.	'Provisional' licences issued while formal training completed. Trainee permit Unit 6 of Certificate III required	None (the general operator license can have restriction placed on it)	No
Scope of legislation	Domestic, commercial, horticultural, forestry and agricultural application	Licences required for domestic/commercial/ horticultural/forestry/ agricultural operations	Domestic/commercial and agricultural application	Commercial application of AgVet Chemicals

*certification legislation ensures standards are enforced for the safe conduct of pest management work and in the handling and use of pesticides so as to not put operators and the public at risk; environmental issues are included as part of the general scope of most legislation as these may also impact upon public health.

State

Northern Territory

Regulatory authority

Poisons Control, Department of Health and Community Services

Legislation administered

Poisons and Dangerous Drugs Act 1983

Types of licence

Technician

A technician licence to apply pesticides for fee or reward is issued under section 55 of the Poisons and Dangerous Drugs Act. Section 56 of the Act specifies the conditions under which the licence is granted. These conditions are further outlined in *Guidelines for Applicants,* issued by the Department of Health and Community Services. A technician's licence is valid for a period of one year from the date of issue.

Provisional licence (trainee)

The applicant must lodge an application, consistent with section 55 of the Poisons and Dangerous Drugs Act. The conditions for the issue of a provisional licence are outlined in the *Guidelines for domestic and commercial pest control licence (provisional).*

A provisional licence is issued to an applicant who is enrolled or undertaking training in the units of competency specified in the National standards for licensing pest management technicians, and is employed and supervised by a fully licensed pest control operator, and fulfils the requirements stated in the guidelines. The licence is valid for a period of 12 months, and can be renewed for a further 12 months if the applicant has not successfully completed the units required to be licensed as a full Pest Management Technician.

Interstate operator (mutual recognition)

An interstate operator who holds a current pest control licence in another Australian state or territory and wishes to become licensed in the Northern Territory must lodge an application on a prescribed application form. Conditions for granting a licence under Mutual Recognition principles is contained in the guidelines for the Completion of Application for Licence to be a Pest Control Operator- Mutual Recognition. The licence is valid for a period of 12 months, and may be renewed for a further period of 12 months.

Licence authorisations

A technician's licence will permit the use of a range of registered, scheduled and unscheduled pesticides other than fumigants.

Provisional licence holders will be permitted to use a range of registered unscheduled, Schedule 5 and 6 pesticides only while employed by, and under the direction of, a fully licensed pest control operator.

Other Schedule 7 substances

A person who intends to possess or use Schedule 7 fumigant for fee or reward is required by the Poisons and Dangerous Drugs Act to be licensed as a pest control operator in accordance with section 56 of the Act, with an endorsement for the intended fumigant. (Conditions apply)

All pest control procedures must be carried out in accordance with the *NT Code of practice for handling of pesticides,* and also the *Code of conduct for pest management technicians* as published in *Pesticide use in schools and school grounds* by the National Environmental Health Forum.

Contact details

Poisons Control
Department of Community Services
PO Box 40596
Casuarina NT 0811

Phone: (08) 8922 7341
Fax: (08) 8922 7200
Website: www.health.nt.gov.au (search for Poisons Control, under ‘Topics’).

State

Queensland

Regulatory authority

Drugs and Poisons Policy and Regulation, Environmental Health Unit, Queensland Health

Legislation administered

Pest Management Act 2001
Pest Management Regulation 2003
Health Act 1937
Health Regulation 1996
Health (Drugs and Poisons) Regulation 1996

Types of licence

A pest management technician licence may be granted to a suitable applicant under section 21 of the Pest Management Act 2001 where the applicant possesses qualifications listed in Part 2 of the Pest Management Regulation 2003. In the case of an applicant seeking a licence endorsement for fumigation activity for specific site environments, the applicant must provide a Declaration of Assessment completed by the Registered Training Organisation's accredited assessor stating the specific site environments assessed by the assessor. The licence can be for a period of one to five years duration from the date of issue.

In addition, the Queensland Building Services Authority (QBSA) administers legislation that may require a pest management technician involved in timber pest building work to hold a QBSA licence. The applicable legislation is the Queensland Building Services Authority Regulation 2003.

Licence authorisations

A single photographic licence is issued for the following types of pest management activities:

- pest control activity (other than activities for timber pests)
- pest control activity (including timber pest activity)
- fumigation activity subject to specified site environments.

Contact details

Drugs and Poisons Policy and Regulation
Environmental Health Unit
Queensland Health
GPO Box 48
Brisbane QLD 4001

Phone: (07) 3234 0938
Fax: (07) 3234 1480
Website: www.health.qld.gov.au

State

South Australia

Regulatory authority

Controlled Substances Licensing, Department of Health

Legislation administered

Controlled Substances Act 1984

Controlled Substances (Pesticides) Regulations, 2003

Types of licence

Pest controller's (PC) licence

A licence issued under Regulation 8 to a business undertaking pest control work. PC licence holders must hold a FPMT licence or employ someone who does. All pest management technicians must work under a PC licence which must carry the same (or more) endorsements as those of the technician.

Full pest management technician's (FPMT) licence

A licence to work without supervision, issued under Regulation 9. Qualifications/competencies achieved determine the licence endorsements granted with regard to the type of work undertaken and type of pesticides used.

Limited pest management technician's (LPMT) licence

A licence issued under Regulation 9 to work under the direct or indirect supervision of a FPMT/s. A supervisor must have the same (or more) endorsements as the LPMT. LPMT licences are issued on the condition the technician will commence and obtain the appropriate qualifications/competencies for a FPMT licence as soon as practicable after the licence is granted. LPMTs cannot make recommendations or give advice regarding the use of pesticides.

Direct supervision (within sight and sound) of an LPMT is required unless the authority to work under indirect supervision (within sight or sound) has been granted by the licensing authority. Applications to work under indirect supervision must be accompanied by the appropriate supervisor trainee skills declaration/s and proof of attainment of two basic competencies (that is, Prepare and Apply Chemicals and Transport, Handle and Store Chemicals or Manage an Equipment and Chemical Storage Area and Apply Pesticides to Manage Pests or closed-book assessed ChemCert).

FPMT and PC licences expire on 30 June each year, with three-year licensing expected to be introduced in 2008. LPMT licences are issued for one year from the date first granted and can only be renewed once.

Licence endorsements

The type/s of work, and the type/s of pesticide a technician is authorised to do and use appear as endorsements on the licence and, in accordance with Department of Health policy, are based on competencies achieved. Endorsements can be divided into 'Operations' (type of work) and 'Groups' (type of pesticide) and include:

- domestic (+/- timber pests), fumigation (soil, silo, stack, and/or ships), general weed, agricultural, viticulture, horticulture and agricultural pilots
- insecticides, herbicides, rodenticides, methyl bromide, phosphine.

Contact details

Controlled Substances Licensing
Department of Health
PO Box 6 Rundle Mall
Adelaide SA 5000

Phone: (08) 8226 7100
Fax: (08) 8226 7102
Email: controlled.substances@health.sa.gov.au
Web: http://www.dh.sa.gov.au/pehs/default.htm

State

Tasmania

Regulatory authority

Chemical Management Branch, BioSecurity and Product Integrity Division, Department of Primary Industries, Water and Environment

Legislation administered

Agricultural and Veterinary Chemicals (Control of Use) Act 1995

Application and scope of legislation

Domestic, commercial, horticultural, forestry and agricultural

Types of licence

Commercial operator licence (business)

Issued to the individual applying for the licence under the business name and renewable annually.

Individual certificates of competency

Issued for various chemical category users (including fumigation) and renewable annually. Categories as follows:

Category	Application method	Annual cost (fees vary annually according to CPI increase)
Category 1	hand held equip., small volumes (<2L or 2kg) per year of herbicide concentrate registered for home garden use	$11.70
Category 2	hand held equip., larger volumes of herbicides, insecticides etc. - application of vertebrate pest poisons	$46.80
Category 3	motorised application equipment for example boom spray, airblast	$46.80
Pest Technician	pest control in and around buildings - rodents, ants, wasps etc.	$58.50
Methyl Bromide/ phosphine user	application of fumigants - glasshouses, quarantine etc.	$23.40

Individual agricultural spraying permits

Issued for specific uses as follows:

Agricultural spraying permit (issued for five years)

- A chemical product containing 4-aminopyridine hydrochloride
- A chemical product containing alpha chloralose
- A chemical product containing mevinphos (for brassica crops only)

From 30 June 1997, all purchasers of Phosdrin Insecticide are to hold a current ChemCert/Chemical approved users course qualification and provide details of their approval number at the time of purchase. The following information will be recorded in a register, held by the reseller:

- name and address of purchaser and details with proof of identification, date of purchase
- farm care/chemical users course in safety and handling/certificate number
- crop (s) to be treated with the product and area to be treated.

- A chemical product containing fenthion, when used or to be used for control of birds
- A chemical product containing pindone.

APPLICATION FEE OF $70.20 (but subject to annual CPI increase)

Trainee permit

None, however a 'provisional' certificate of competency can be issued under supervision for 3–6 months until required accredited training completed.

Mutual recognition – interstate licensed operators

If a person applying for mutual recognition licence status in Tasmania holds a current and active licence from interstate, then under the *Commonwealth Mutual Recognition Act 1992,* our licensing jurisdiction will cover that person for what they were endorsed for in that state, provided that endorsement is recognised in Tasmania. For example, a person applying from Queensland for a pest management technician certificate of competency can be endorsed for insect pest and rodent control but it would not specify termites as termites do not exist in Tasmania.

Supervision policies

An employee who has not been granted a Chemical User Certificate of Competency may apply chemical products for a licensed commercial operator only if the following conditions apply:

1. The employee has been employed by the commercial operator for a total of less than four weeks (including work from previous years).
2. Before completion of the four-week period:
   - the employee is enrolled in the next available training courses/modules which, when completed, will qualify the employee for a certificate of competency appropriate for the pest management work undertaken, and
   - an application for a certificate of competency is received, together with evidence that the employee is enrolled in the relevant training courses/modules.

3. The employee has received training in the use and maintenance of personal protective equipment appropriate for the types of chemicals to be applied.
4. The employee must not mix or prepare chemicals.
5. The employee must not handle or apply any chemical product which is classified as a schedule 7 poison.
6. The employee must be under the **direct supervision*** of a responsible person holding a certificate of competency that is valid and appropriate for the work undertaken.

* an employee who is under **direct supervision** must be:

- responsible to the supervisor for any work involving the use of chemicals
- within sight and verbal communication of the supervisor of the work
- under instruction from the supervisor on the nature and extent of the work to be performed and precautions to be observed to minimise risks to employee health and safety, public safety and the environment.

When an application, with evidence of course enrolment is received within the appropriate time-frame, a **provisional** certificate of competency will be issued. This will allow the employee to continue to work for six months, in accordance with conditions 4, 5 and 6, during which time the training must be completed. After training is completed the employee may be issued with a full Certificate of Competency which removes these conditions.

Licence authorisations

All certificates of competency are issued to operators once they have completed recognised accredited training in the use of agricultural chemicals, specific to their discipline of work. The certificate of competency will specify the types of spraying work conducted. For example:

- A **pest management certificate of competency** may be issued for insect pest, rodent and bird control if the operator has completed the three core units of the Pest Management – Technical Training from the Asset Maintenance Training Package. This training and assessment conforms to the national licensing standard for pest management technicians.
- A **Category 3 Chemical User certificate of competency** may be issued for insect pest, disease and weed control in cropping, non-cropping and forestry situations.

Contact details

Licence and Review Coordinator
Chemical Management Branch
Department of Primary Industries, Water and Environment
GPO Box 44
HOBART TAS 7001

Phone: (03) 6233 6825
Toll Free: 1300 368 550
Fax: (03) 6233 3843
Web: www.dpiwe.tas.gov.au

State

Victoria

Regulatory authority

Pest Control Program, Department of Human Services

Legislation administered

Health Act 1958
Health (Pest Control) Regulations 2002

Types of licence

Technician

A technician licence to use pesticides is issued under section 108C(2) of the *Health Act 1958* and may be granted to an individual who has attained an appropriate qualification as prescribed in Schedule 2 to the Health (Pest Control) Regulations 2002. A technician licence is valid for a period of three years from the date of issue.

Trainee

A trainee licence to use pesticides is issued under section 108C(2A) of the *Health Act 1958* and may be granted to an individual who is enrolled or undertaking training in the units of competency specified in the *National standard for licensing pest management technicians* or one of the courses listed in Schedule 3 to the Health (Pest Control) Regulations 2002 and is applying pesticides in the practical training of pest control while under the supervision of an appropriately qualified pest control technician with a valid licence. A trainee licence is valid for a period of one year from the date of issue, and may only be issued on a maximum of three occasions.

Interstate operator

An interstate operator licence to use pesticides is issued under pest control regulation 6(2). An individual who usually resides in another state or territory of the Commonwealth and who holds a valid licence as an authorised user of pesticides in that state or territory, must apply for a Victorian licence to use pesticides in order to apply pesticides in the business of a pest control operator in Victoria. Providing the pesticides they apply for authorisation to use are the same or similar in all respects to the pesticides that are authorised for use under their current licence, they will be granted a Victorian licence to use pesticides, valid for a period of three years from the date of issue.

Licence authorisations

The Licence to Use Pesticides will authorise a pest control operator to use one or more class of pesticides depending on the type of pest control work the pest control operator is qualified to undertake.

A pest control operator who has completed a qualification listed in part 1 of Schedule 2 to the Health (Pest Control) Regulations 2002 or a trainee who is undertaking training in Units 5, 6 and 18 of Certificate III in Asset Maintenance (Pest Management— Technical), may elect to have the following authorisation listed on their licence:

- **pesticides (excluding fumigants) formulated for the control of arthropods, rodents, birds and fungi, which are used to control pests (other than pest animals).**

A pest control operator who has completed a qualification listed in part 2 of Schedule 2 to the Health (Pest Control) Regulations 2002 or a trainee who is undertaking training in a prescribed qualification may elect to have the following authorisation listed on their licence:

- **pesticides formulated for the control of pest animals.**

A pest control operator who has completed a qualification listed in part 3 of Schedule 2 to the Health (Pest Control) Regulations 2002 or a trainee who is undertaking training in Unit 11 of Certificate III in Asset Maintenance (Pest Management—Technical) may elect to have the following authorisation listed on their licence:

- **pesticides in the form of fumigants.**

Contact details

Department of Human Services
Pest Control Program
GPO Box 4057
Melbourne VIC 3001

Phone: 1300 887 090
Fax: 1300 881 765
Email: pestcontrol@dhs.vic.gov.au
Web: www.health.vic.gov.au/pestcontrol

State

Western Australia

Regulatory authority

Pesticide Safety Branch, Department of Health

Legislation administered

Health Act 1911
Health (Pesticides) Regulations 1956

Types of licence

Provisional pesticide operators licence

A provisional licence is issued under regulation 69 of the Health (Pesticides) Regulations 1956 and may be granted to an individual upon successful completion of Unit 6 of Certificate III in Asset Maintenance (Pest Management – Technical). A provisional licence holder is expected to complete the remaining units of Certificate III while undertaking practical training under the supervision of an appropriately qualified pest management technician. A licence is valid for a period of one year from the date of issue. There is provision in the regulations to allow for an extension of the licence for a further 12 months.

Full pesticide operators licence

A full licence is issued under regulation 70 of the Health (Pesticides) Regulations 1956 and may be granted to an individual who has attained an appropriate qualification as prescribed by the regulations. A full licence is renewable annually as of 30 June.

Fumigators licence

A fumigators licence is issued under regulation 36 of the Health (Pesticides) Regulations 1956 and may be granted to an individual upon successful completion of Unit 11 of Certificate III in Asset Maintenance (Pest Management – Technical) and a medical examination certifying that the applicant is fit to undertake fumigations. A licence is valid for a period of one year from the date of issue.

Firm registration

A firm registration is issued under regulations 33 (fumigation) and 63 (general pest management) of the Health (Pesticides) Regulations 1956. If satisfied that the applicant is properly equipped to undertake the use of registered pesticides/fumigants, and has in their employ appropriately qualified technicians, registration may be granted.

Interstate operators

An individual who usually resides in another state or territory of the Commonwealth and who holds a valid licence in that state or territory must apply for a Western Australian licence in order to apply pesticides in the business of a pest management technician in Western Australia. Providing the pesticides they apply for authorisation to use are the same or similar in all respects to the pesticides under their current licence and their qualifications are recognised in Western Australia, they will be granted a Western Australian licence.

Licence authorisations

A pesticide operators licence/fumigators licence will authorise a technician to use one or more registered pesticides in one or more operational areas depending on the type of work the operator is qualified to undertake.

For a detailed list of operational areas and the required qualifications please contact the Pesticide Safety Branch on the contact details below or access the document *Guide to Obtaining a Pesticide Operator's Licence* at www.population.health.wa.gov.au/Environmental/pesticide_safety.cfm

Contact details

Department of Health
Pesticide Safety Branch
PO Box 8172
Perth Business Centre WA 6849

Phone: (08) 9388 4999
Fax: (08) 9388 4905
Email: pesticidesafety@health.wa.gov.au

Appendix 4 - Pesticide Exposure Risk Assessment Checklist

Use this checklist as a base for conducting a chemical exposure risk assessment

Step 1	Have you decided who will do it?	Yes / No
Step 2	Have you divided the work into units and listed the work tasks?	Yes / No
Step 3	Have all substances been identified?	Yes / No
	■ Have you determined which are hazardous and/or dangerous? (if there are no hazardous substances or dangerous goods then no further action is required apart from recording this)	Yes / No
	■ Has the register been compiled?	Yes / No
Step 4	Have you examined the MSDS and other sources of information or health effects?	Yes / No
Step 5	Has exposure been identified in each work task? For each hazardous substance find out:	Yes / No
	■ Is it released or emitted into the work area?	Yes / No
	■ Who is exposed?	Yes / No
	■ How much are persons exposed?	Yes / No
	■ What controls are proposed?	Yes / No
Step 6	What are the conclusions about risk – is it simple and obvious? If yes go to Step 8, if no, decide if:	Yes / No
	■ risks are not significant	Yes / No
	■ risks are significant but controlled	Yes / No
	■ risks are significant and not adequately controlled	Yes / No
	■ risks are uncertain.	Yes / No
Step 7	Have actions resulting from conclusions been identified?	Yes / No
	■ No further action required?	Yes / No
	■ Seek expert help?	Yes / No
	■ Introduce control measures?	Yes / No
	■ Induction and training required?	Yes / No
	■ Monitoring required?	Yes / No
	■ Health surveillance required?	Yes / No
	■ Emergency procedures and first aid required?	Yes / No
Step 8	Has the assessment been recorded?	Yes / No
	■ On the MSDS in the register?	Yes / No
	■ On a record form?	Yes / No

Appendix 5 - Risk assessment of hazardous substances

(Keep for 30 years from date of assessment if risk significant, 5 years if not significant)

Name of Substance:

Work unit (job): **Person/s exposed:** **Assessment team:**

Work area:

Summary of process:

Date:

HAZARDOUS SUBSTANCE INGREDIENT/S	HAZARD INFORMATION on HEALTH EFFECTS TASK	TASK	EXPOSURE ROUTES (where applicable)	CURRENT CONTROLS	LIKELIHOOD OF EXPOSURE SCORE (refer over page)	CONSEQUENCE OF EXPOSURE SCORE (refer over page)	RISK SCORE (1-7)	RISK CONCLUSION (refer over page)
			EYES					
			SKIN					
			INHALATION					
			INGESTION					
			EYES					
			SKIN					
			INHALATION					
			INGESTION					

RECOMMENDATIONS (for example, change to controls):

IS AIR MONITORING REQUIRED?:

IS HEALTH SURVEILLANCE REQUIRED?:

Assessor/s signature: **Date:**

Approved by/Name: **Signature:** **Date:**

PTO FOR INFORMATION ABOUT RISK SCORING, RISK CONCLUSIONS AND HEALTH SURVEILLANCE

Risk rating chart

LIKELIHOOD How likely could it happen?	**CONSEQUENCES:** How severely could it hurt someone?			
	EXTREME death, permanent disablement	**MAJOR** serious bodily injury	**MODERATE** casualty treatment	**MINOR** first aid only, no lost time
VERY LIKELY could happen frequently	1	2	3	4
LIKELY could happen occasionally	2	3	4	5
UNLIKELY could happen but rare	3	4	5	6
VERY UNLIKELY could happen, probably never will	4	5	6	7

1, 2, 3 = Immediate; 4, 5 = ASAP; 6, 7 = may not need immediate attention.
**Risk management advisory standard 2000*

Factors affecting LIKELIHOOD of exposure:

- The frequency or duration of time the hazardous substance is used.
- How many people are using the hazardous substance.
- The skills and experience of the people using the hazardous substance.
- The effectiveness of existing controls.

Factors affecting CONSEQUENCES of exposure:

- Concentrations of hazardous substances (dilute versus concentrated).
- Volume of hazardous substance being used.
- Hazardous substance is in a FORM that can be absorbed into the body. For example, airborne form can be inhaled, liquid onto the skin – See Material Safety Data Sheet.

Conclusions from the risk assessment

Conclusion 1: Risks NOT SIGNIFICANT* now and not likely to increase in the future. This conclusion applies where it is unlikely that the use of the hazardous substance will adversely affect the health of persons at the workplace and the risk is not likely to increase in the future. For example, the amounts or rate of use of a hazardous substance are too small to constitute a risk, even if controls fail.

Conclusion 2: Risks are SIGNIFICANT* but effectively controlled, and could increase in the future. This conclusion usually applies to conditions where serious health effects could result if the control measures fail or deteriorate. This usually results from the use of a highly toxic hazardous substance or where the potential exposure is high. Risks, while presently adequately controlled, could increase in the future owing to, for example, undetected deterioration in the efficiency of control measures; plant including personal protective equipment failure; control measures not used properly; a significant increase in the quantity of the hazardous substance used. ACTION REQUIRED: review controls; determine if monitoring or health surveillance is required to check on effectiveness of controls.

Conclusion 3: Risk SIGNIFICANT* now, and not effectively controlled. The following are examples of work conditions where the use of a hazardous substance is likely to constitute a risk, and further investigation, for example, monitoring might be necessary: where dusts, mist, fumes are visible in the air, for example in light beams, and there are persistent or widespread complaints of illness, discomfort, irritation or excessive odour; hazardous substances are splashed; control measures are broken, defective or badly maintained – for example, poorly maintained extraction fan motor; airborne concentrations approach or exceed exposure standards. ACTION REQUIRED: work out if there is a need to stop the process; review controls; determine if atmospheric monitoring or health surveillance is required.

Conclusion 4: UNCERTAIN about risks: not enough information, or uncertain about degree and extent of exposure. If the level of exposure cannot be estimated with confidence, further investigation is necessary. Atmospheric monitoring might be required to estimate the level of exposure. For a hazardous substance absorbed through the skin, ingested or inhaled, biological monitoring might be required. The employer should seek specialist advice if necessary.

*Significant risk – means that the work with a hazardous substance is likely to adversely affect the health of workers and other persons at the workplace.

More information on conclusions about risk can be found in: *Advisory standard 2003 for hazardous substances,* Department of Industrial Relations, Queensland Government.

HEALTH SURVEILLANCE: See Workplace Health and Safety Regulation 1997, Section 109. In general, health surveillance is required if substance is listed in Schedule 6 of this Regulation and risk is significant or there is an identifiable work related health effect from exposure to the substance and a valid technique or monitoring procedure exists to detect the adverse health effect.

Appendix 6 - Example of Organophosphate Pesticide Health Surveillance form

ORGANOPHOSPHATE PESTICIDE HEALTH SURVEILLANCE

OCCUPATIONAL HISTORY
TO BE COMPLETED BY THE WORKER PRIOR TO MEDICAL EXAMINATION

The following information is CONFIDENTIAL and is part of health surveillance as required under the Queensland Workplace Health and Safety Regulation. It will assist the Designated Doctor to advise you and your employer on workplace hazards and associated potential health problems.

SURNAME_____ GIVEN NAMES_____

Home Address _____

Date of Birth_____ Male/Female_____ Postcode_____ Home Telephone _____

EMPLOYMENT

Current Employer____

_____ Work Address_____

_____ Postcode _____ Work Telephone

_____ Length of employment ____

WORK TASKS / ENVIRONMENT

Describe your current job _____

_____

What pesticides do you use? ____

What are they used for? __

Do you mix up solutions of pesticides? Yes / No

How do you apply pesticides?

- O Handpump spray
- O Pour-on gun
- O Back-Pack spray
- O Spray race
- O Dip
- O Tractor Spray
- O Aerial
- O Other (describe) _____

How often are you using/mixing organophosphate pesticides?

- O Occasional (for example _ day or less)
- O Intermittent (for example 2-3 days, all day, once a month or so, one day a month)
- O Seasonal (for example 4 days/week over the season)

When was the last time you used/mixed any organophosphate pesticides? _____

What did you mix/use? _____

ORGANOPHOSPHATE PESTICIDE HEALTH SURVEILLANCE (cont).

How often do you use the following items of personal protective equipment?

PPE	TYPE	Never	Sometimes	Mostly	Always	Other comments
Respirator	Disposable (nuisance dust)					
	Disposable (toxic dusts)					
	Cartridge/canister					
	Air-Line					
Gloves	Cotton or Leather					
	Rubber or PVC					
	Nitrile					
Other	Visor/face shield					
	Disposable overalls					
	Hats					
	Boots					

Do you have access to Material Safety Data Sheets (MSDS) for the pesticides you are using?

O Yes
O No
O Not sure

Do you usually wash your hands before eating, drinking or smoking?

O Yes
O No
O Not sure

Answer **ONE** of the next **THREE** questions as appropriate.

1. I am currently a O TOBACCO SMOKER

I currently smoke the equivalent of_____cigarettes per day.

I have smoked regularly for_____years.

OR 2. I am currently an O EX-TOBACCO SMOKER and I gave up smoking_____years ago.

OR 3. I am currently a O NON-SMOKER and I have never smoked regularly.

CONSENT

I give my consent for the results of my medical examination, including blood tests for cholinesterase, and these health surveillance forms to be given to my EMPLOYER. I understand that my employer is obliged to keep my results in a secure and confidential manner. I also understand that my treating DOCTOR can request copies of these records.

SIGNED _____

DATE _____

Appendix 7 - Guidelines for spraying in public places

Section 1 – General

This section applies to any person who uses and applies chemical products in public places.

1. You must only use chemical products that are registered or permitted for use on the target host.
2. You must not apply a chemical product at variance with the label instructions, except in accordance with an authorised permit, or where it is applied at a lower rate, concentration or frequency than advised on the label.
3. You should always use products that will do the job effectively. Where practicable, you should use those products that are least toxic to people and the environment.
4. You must store chemical products in their original containers in a dry, well-ventilated area that is not easily accessible to children or animals. A source of water suitable for washing should be located nearby. Permanent stores must comply with the storage requirements of Australian Standard AS 2507.
5. When handling or using a product, you must be equipped with and wear the protective and safety equipment recommended on the product label, unless more effective exposure control methods are employed.
6. You must not eat, drink or smoke while handling or using chemical products.
7. You must maintain spray equipment in good operational order. You must not start maintenance until the equipment has been cleaned.
8. You must not spray onto waterways or waterbodies or water logged areas unless the product is approved for such use.
9. When spraying, you must not allow a chemical product to move off target to the extent that it may adversely affect any people, their land, water, plants or animals. Areas of particular concern include schools, community halls, malls, parks and gardens.
10. You must maintain a record of spraying operations. Your records must at least include the date, location, name and rates of any chemical products applied – however you should check with your state or territory authority for the minimum requirements. These records must be made available to relevant authorities if requested.
11. Where practicable, the spray supervisor should inform the public of impending spray operations, and notify them of current operations through the use of signage or whatever suitable means are available.
12. You must stop spraying if a member of the public or other third party should approach the area being sprayed.
13. If you are approached by a member of the public with an inquiry or complaint, you should answer their questions or refer them to your supervisor. The public must be treated with courtesy at all times.

Section 2 – Rural, rural/residential, suburban and urban areas

This section applies to any person who sprays chemical products in areas such as on country roads, verges, nature strips and railway lines.

14. If you work on roadsides, nature strips and similar areas, you must display signage on the front and back of your vehicle to alert road users to the spray activity in progress. The telephone number of the spray supervisor must also be displayed in case the public should wish to enquire about the spray operation, or in case of an emergency.
15. You must not operate a hand lance from inside a vehicle cabin. It is acceptable to operate a lance from the vehicle tray provided the spray tank is firmly fixed to the vehicle and the operator is in a secure position. A seat fixed firmly to the vehicle is recommended.
16. You must not spray any plants, shrubs, trees or bushes that are bearing mature or near mature fruit.
17. When possible, avoid spraying plants when they are in flower. Bees are likely to be collecting nectar. If the spray is not toxic to bees, it may still cause a residue in their honey.
18. Be aware of any crops or enterprises in adjoining paddocks that may be sensitive to the chemicals you are using. If in doubt, recheck the label or seek advice from the relevant state or territory authority.
19. You must notify your intention to carry out spraying to owners of any sensitive crops or enterprises in the vicinity.
20. If the spray job is a large one, encompassing a number of adjoining properties, you should consider a notice in the local newspaper.
21. You must report any spills that can threaten the environment to the relevant state or territory authorities.
22. If you spray an area with a chemical product for which a re-entry period is specified on the label, you must take appropriate measures to prevent public entry into the area until the re-entry period has expired. If no re-entry period is specified on the label, you should still consider excluding people from the area until any sprayed foliage is dry.
23. If a property owner or resident has identified a pest problem on public property, it should be brought to the council's attention.
24. Property owners and other individuals must not use chemical products on public land unless a written agreement to do so has been reached with council authorities.
25. Spray operators must not spray on private property without the resident's consent.

Section 3 – Parks, gardens and bush reserves

This section applies to any person who sprays chemical products in areas likely to be frequented by many people, including parks, gardens, community halls, churches, child care centres and such like.

26. You must choose the time of spraying carefully. Your preferred time will depend on the particular area to be sprayed. Times of low population density are preferred.

27. The Education Department has its own rules for pesticide use in areas under their jurisdiction. You must always consult with the school principal before applying sprays in the vicinity of schools (see also section 8.3.4).

Section 4 – Relation to Acts, regulations and other codes

These guidelines do not remove or alter any obligation or requirement under any Act or regulation or alter the need to comply with other codes of practice or industry guidelines.

Legislation relating to the use of agricultural chemicals will vary between states and territories and you should contact the relevant state or territory authority for more information.

Adopted from *Code of practice for spraying in public places* by Department of Primary Industries, Water and Environment, Tasmania, June 2004.

Appendix 8 Inventory (list) of hazardous substances and dangerous goods, including pesticides

Company:	**Site:**	**Last updated:**

Name of product	**Identification code** (for example United Nations number)	**Dangerous Goods Class (if applicable) and Hazchem**	**Maximum quantity stored and type of storage** (for example drums, tanks)	**Location of storage on site**	**Manufacturer's name and contact phone number**	**Material Safety Data Sheet (MSDS) date of issue**
			Quantity:			
			Stored in:			
			Quantity:			
			Stored in:			
			Quantity:			
			Stored in:			
			Quantity:			
			Stored in:			