Final Report of the Stored Chemicals Sub-Committee to the Community Consultative Committee on Chemicals

Department of Conservation and Environment
Perth, Western Australia
Bulletin 271 February 1986

FINAL REPORT OF THE STORED CHEMICALS SUB-COMMITTEE

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ACKNOWLEDGEMENTS

Information was provided from a number of sources during the deliberations of the Sub-Committee and we gratefully acknowledge them.

The Radiation Health Branch of the Health Department of WA provided information concerning the storage of radioactive substances in Western Australia.

A number of interstate government agencies, including the NSW Department of Planning and Environment, the South Australian Departments of Labour, and Mines and Energy, the Tasmanian and Queensland Departments of Mines, the Victorian Ministry of Employment and Training and Department of Mines and Energy, provided valuable information on their existing and proposed legislation to control the storage of hazardous chemicals.

Nightingale Chemicals WA, Alcoa of Australia Ltd and the WA Fire Brigades Board provided the Sub-Committee with the opportunity to experience first hand, the problems associated with the storage of chemicals and provision of emergency information, and we sincerely thank them for their hospitality and assistance.

Finally, considerable help was received from government officers and individuals too numerous to acknowledge individually.

PREFACE

The final report of the Stored Chemicals Sub-Committee was first published as a public discussion paper in August 1985. This provided an opportunity for government, industry, trade unions and other community organisations to comment upon the recommendations made for legislation to control the storage of chemicals.

The draft report was revised to reflect comments made in the public submissions, and it is presented here in its final form.

The Sub-Committee made extensive use of the New South Wales Dangerous Goods Regulations 1975 in the preparation of the final report and these regulations need to be read in conjunction with this report. Copies of the Regulations are available, on reserve, from the Department of Conservation and Environment Library, Ground Floor, 1 Mount Street, Perth.

Telephone enquiries on the report may be directed to Ms Naomi Arrowsmith of the Department of Conservation and Environment, 1 Mount Street, Perth, WA, Telephone (09) 322 2477.

1.0 INTRODUCTION

In November 1983, Cabinet approved a joint submission from the Ministers for Industrial Relations and the Environment for the establishment of a broadly representative Community Consultative Committee on Chemicals (CCCC).

The Committee was formed as part of the commitment of the State and Federal Governments to achieving greater protection for the public and the environment from the undesirable effects of dangerous or potentially hazardous chemicals. The CCCC acts as a forum for advice, liaison and exchange of views with industry, unions and other community organisations on the notification, assessment and control of hazardous chemicals in Western Australia. Terms of reference and representation of the Committee are given in Appendix 1.

At the inaugural meeting of the CCCC (21 February 1984), the need for procedures for the control of storage and handling of dangerous goods was recognised. It was considered important that any such control should complement the Dangerous Goods (Road Transport) Regulations, recently created under the Explosives and Dangerous Goods Act 1961.

The importance of controlling the storage, labelling and packaging of chemicals was also recognized by the House of Representatives Standing Committee on Environment and Conservation, in the Second Report on the Inquiry into Hazardous Chemicals, released in December 1982.

As a consequence of this recognition, the Stored Chemicals Sub-Committee was established in March 1984 with the following terms of reference:

1. To report on the need for, and the scope of, procedures for the control of stored chemicals with due allowance for possible incompatibilities, segregation requirements and adequate labelling.

2. To consider the suitability of construction and location of stores and storage areas.

3. To report back to the Community Consultative Committee on Chemicals.

The Sub-Committee consists of representatives from the Explosives and Dangerous Goods Division (Department of Mines), the Department of Industrial Affairs, the Royal Australian Chemical Institute, the WA Fire Brigades Board, the Department of Conservation and Environment, the Trades and Labor Council, the Chamber of Mines of WA, the Primary Industry Association of WA and the Confederation of WA Industry. The Sub-Committee is under the chairmanship of Dr B.P. Kennedy, Chairman of the Royal Australian Chemical Institute Safety Committee. The secretariat is provided by the Department of Conservation and Environment. Membership of the Sub-Committee is set out in Appendix 2.

The Stored Chemicals Sub-Committee has been fortunate in that the New South Wales Government has comprehensive legislation to control hazardous chemicals in the form of its Dangerous Goods Act 1975 and Regulation. Although it is inappropriate for WA to adopt the NSW legislation in its entirety, it has been useful in acting as a model for preparing recommendations appropriate to Western Australia. Queensland and the Northern Territory are similarly using the NSW legislation as a basis for preparing their own legislation. If more comprehensive legislation to control dangerous goods in Western Australia is to be drafted, the use of the NSW legislation as a model will promote some degree of uniformity between States.

The Sub-Committee decided that it would not attempt to determine actual cut-off quantities of chemicals below which any recommendations would not apply, nor attempt to specify separation distances between incompatible chemicals. Specific quantities and distances are stated in the NSW Regulation and the Sub-Committee sought feedback on the operation of the Regulation from both the regulated and the regulators in NSW. Recommendations have been framed accordingly.

Moreover, the Sub-Committee did not see its role as actually writing regulations or codes of practice, but believed it should make recommendations so that regulations and codes could be derived therefrom. Consistent with this, the Sub-Committee has not made recommendations on the structure of any regulations which may be made, however it saw the following points as having validity.

1. There is a need to consolidate the existing scattered legislation, subject to the caveat that the result of such an exercise should lead to greater efficiency and effectiveness in implementation. The Sub-Committee had little doubt that this would occur.

2. That consolidated regulations be made pursuant to the Explosives and Dangerous Goods Act 1961. This would have implications for regulations currently promulgated under the Act (eg. class 1 and class 3 goods). Class 7 goods should remain under their own specialist legislation as at present.

3. The structure of the NSW Regulation would be appropriate for any regulations proposed for WA.

The Sub-Committee, in the course of its deliberations, visited a number of premises involved in the storage of dangerous goods, including a small manufacturing company, a larger company that consumes chemicals and, in addition, the WA Fire Brigades Board which deals with dangerous goods emergencies. Each has been valuable in giving the Sub-Committee insight into problems faced by industry and emergency services with respect to dangerous goods storage.

2.0 RECOMMENDATIONS

The Sub-Committee recommends that:

Legislation

1. legislation be developed to control the storage of dangerous goods.

2. any legislation drafted to control the storage of dangerous goods should apply to all premises, whatever their nature, function or purpose. The legislation should bind the Crown.

3. any legislation drafted to control the storage of dangerous goods be compatible with existing legislation controlling the transport of dangerous goods and attempt to ensure compatibility with equivalent legislation in other Australian States and Territories. Any WA Regulations should be made pursuant to the Explosives and Dangerous Goods Act 1961. Flexibility in implementation for existing premises is required, similar to that currently existing in the Explosives and Dangerous Goods Act 1961.

4. any legislation drafted to control the storage of dangerous goods make use of relevant Australian Standards and incorporate an updating mechanism to account for revised Standards.

Content of Legislation

5. to overcome the fragmented nature of existing regulations, the scope of licensing arrangements for chemicals stores be expanded to include all classes of dangerous goods (except class 7, radioactive substances), such that all classes are treated in a consistent manner. A single set of regulations is seen as critical to the achievement of this recommendation.

6. prior to construction of new dangerous goods storage facilities, consideration be given to the surrounding land planning zone and the potential hazard of the plants, and that the degree of separation to be maintained between dangerous goods storages and residential properties or public facilities be determined by the nature and quantity of materials to be stored.

7. proposed stores should conform to building structure specifications (eg. electrical wiring, ventilation, bunding and building material flammability) and design requirements, to ensure adequate fire prevention and egress in the event of fire.

8. proposed building renovations, or alterations to existing dangerous goods stores, and the construction of bunding, be referred to appropriate State and Local Government authorities, to ensure adequacy and safety, and conformity with local government zoning considerations.

9. there be compulsory provision of adequate fire protection systems and fire fighting equipment in and near dangerous goods stores.

10. any licensing requirements for dangerous goods stores incorporate a system whereby accurate records of store contents and quantities are kept, updated on a regular basis, and where feasible, circulated to emergency authorities.

11. the building and storage premises be required to be placarded to assist emergency services personnel and for the general safety of employees and visitors.

12. as an interim measure, requirements for the labelling and safe packaging of dangerous goods in storage be introduced, and be compatible with the requirements for the transport of dangerous goods in the Dangerous Goods (Road Transport) Regulations 1983 (see recommendation 20).

13. there be ready availability of chemical data sheets for employees involved in the handling of chemicals at storage premises.

14. written job procedures be developed, utilizing material derived from chemical safety data sheets, with a view to establishing safe working procedures.

15. requirements for adequate, appropriate and regular training of personnel involved in the storage of dangerous goods be incorporated into any legislation prepared to control dangerous goods.

16. Western Australia incorporate Australian Standard 1940, the Flammable and Combustible Liquids Code, in legislation to replace the existing WA Flammable Liquids Regulations.

17. mains gas be used in preference to liquid petroleum gas, where mains gas is available.

18. the quantities of Class 5 goods kept on premises licensed for the storage of class 3 goods, be subject to cut-off limits significantly below those in the NSW Regulation.

General

19. the Government pursue with the insurance industry, the concept of reduced insurance premiums for those who operate storage facilities with appropriate safety precautions. Insurance premiums should reflect the management practices at storage facilities.

20. a working group be established to investigate more thoroughly all aspects of labelling (see Appendix 4)

21. current appropriate codes of practice be used and further codes be developed.

3.0 EXISTING LEGISLATION

3.1 Commonwealth

The Commonwealth legislative arrangements through which potentially hazardous chemicals and dangerous goods are controlled are numerous and fragmented. The principal regulatory mechanisms are in the areas of pre-market assessment leading to registration, labelling requirements and sales restrictions. Storage of hazardous chemicals is not dealt with in Commonwealth legislation.

An important step towards implementation of controls for dangerous goods was made by the release of the Report of the House of Representatives Standing Committee on Environment and Conservation Inquiry into Hazardous Chemicals in December 1982. The purpose of the Inquiry was to examine legislative and administrative arrangements to ensure proper assessment and control of all chemicals. The Inquiry covered manufacture, transport, storage, use and disposal of hazardous chemicals.

A recommendation made by the House of Representatives Standing Committee in their second report of this Inquiry was that "a mandatory notification and assessment scheme for new chemicals be implemented without delay". Further to this, the Australian Environment Council has developed the National Chemicals Notification and Assessment Scheme which is planned to come into operation in 1986 under the administration of the National Occupational Health and Safety Commission. .

The general objective of the scheme is to protect people and the environment from the harmful effects of hazardous chemicals. This goal is to be achieved by establishing a legal requirement that manufacturers and importers should notify their intention to introduce new chemicals, and a mechanism for systematic assessment of these chemicals. This will result in the provision of assessment reports indicating the implications for protection of the environment, occupational health and safety, public health and consumer protection, and will ensure the inclusion of relevant information on chemical data banks and other information sources.

In addition, the Australian Code for the Transport of Dangerous Goods by Road and Rail, prepared by the standing national Advisory Committee on the Transport of Dangerous Goods, forms a basis for Commonwealth and State legislation to control packaging, labelling and safety requirements applicable to the transport of chemicals and dangerous goods.

3.2 Other States

In general, control of the storage of dangerous goods, and indeed all aspects of dangerous goods, has developed in an uncoordinated manner in all States. New legislation was developed to meet specific problems as they arose. As a

consequence, controls for hazardous materials are effected under a wide range of statutes and their implementation involves a number of Government agencies.

3.2.1 New South Wales

New South Wales has the most comprehensive legislation for the control of the storage of dangerous goods. Existing legislation contains extremely broad regulation-making powers that are adequate to regulate most aspects of the handling of dangerous goods. These powers, however, have not been fully utilized in areas such as the import and export of goods into or from the State.

There are two major pieces of legislation in the area of dangerous goods storage:

The **Radioactive Substances Act 1957**, and Regulations control all aspects of radioactive substances.

The **Dangerous Goods Act** commenced in 1975 after the repeal of the Explosives Act 1905 and the Inflammable Liquids Act 1915. The range of substances that may be controlled as dangerous goods under the Act is unlimited. The Regulation to the Act (1978) is aimed mainly at minimizing risks in storage and transport.

3.2.2 Victoria

Control of the storage of dangerous goods in Victoria derives from the following Legislation:

The **Explosives Act 1960** and Regulations control the storage, use, transport and sale of all explosives.

The **Inflammable Liquids Act 1960** and Regulations deal with storage of petroleum liquids and flammable solvents at refineries, oil terminals and depots, and chemical factories. Storage of flammable liquids on a smaller scale is subject to the **Local Government (Storage of Petroleum and Other Volatile Fluids) Regulations 1977**, made under the Local Government Act 1958.

The **Irradiating Apparatus and Radioactive Substances Regulations 1959** made under the Health Act, govern the use, storage and transport of radioactive materials. The Health (Radiation Safety) Act has recently been created in order to strengthen and widen controls exercised in the area of radioactive materials.

The Victorian Government has recently drafted a Dangerous Goods Bill through which it proposes to promote effective management of all hazardous chemicals, especially those not already covered by existing legislation.

3.2.3 Queensland

The following legislation in Queensland is relevant in the area of dangerous goods storage:

The **Explosives Act 1952** and Regulations cover the manufacture, storage and carriage of explosives.

The storage and use of prescribed flammable gases (basically hydrocarbons) are covered under the **Gas Act** and Regulations.

The **Flammable and Combustible Liquids Regulations** made pursuant to the Local Government Act, cover the storage, labelling and packaging of all flammable liquids (excluding potable liquids).

The storage and sale of poisons is controlled by the **Poisons Act** and Regulations. However, this relates mainly to availability and domestic use of the products rather than storage in larger quantities.

The **Radioactive Substances Act** covers all aspects of the handling and use of radioactive substances.

As in most States, control of dangerous goods storage in Queensland is deficient. An interdepartmental committee is currently considering the introduction of legislation to cover the storage and handling of those dangerous goods not covered by existing legislation.

3.2.4 Northern Territory

Since the **Dangerous Goods Act 1980** was proclaimed, the Northern Territory has had legislation to control the storage and transport of all classes of dangerous goods. Regulations to the Act are currently being drafted and it is envisaged that this will be completed in the near future.

3.2.5 South Australia

Existing controls for the storage of dangerous goods in South Australia are:

The **Explosives Act 1936-1982** controls the storage of all types of explosives.

The **Dangerous Substances Act 1979-1980** provides that "a person shall not keep any prescribed dangerous substances on any premises except:

(a) as permitted by Regulations prescribed for the purpose of this section;

(b) pursuant to and in accordance with the conditions of a licence granted under this Division."

At present, only flammable liquids of class 3 and liquified petroleum gas have been prescribed as being dangerous substances for the purposes of this section and there is no current proposal to extend this.

An interdepartmental committee is presently enquiring into aspects of the adequacy of dangerous substances legislation in South Australia and is expected to complete its report in 1985. Recommendations of this committee would be taken into account in considering any extension of the controls under the Dangerous Substances Act on the storage of chemicals.

3.3 Western Australia

As previously mentioned, state control of dangerous goods has, in general, developed in an uncoordinated manner and this is certainly true of Western Australia.

Control of the storage of dangerous goods is effected under numerous statutes and consequently, serious deficiencies exist. Existing legislation is fragmented and each statute addresses the question of dangerous goods control from a different aspect (eg. poisons legislation specifies label information that is meaningless to someone involved in bulk transport of poisons). The Stored Chemicals Sub-Committee has recognized that there is much scope for simplifying and co-ordinating the existing control measures.

The Sub-Committee notes that the Toxic Substances Legislation Sub-Committee has been established under the auspices of the Western Australian Advisory Committee on Chemicals.

The Toxic Substances Legislation Sub-Committee is reviewing existing Western Australian, interstate and overseas legislation with a view to preparing proposals for amendments to the existing system and identifying the scope and form of a comprehensive model Toxic Substances Control Act. Terms of reference, representation and membership of the Toxic Substances Legislation Sub-Committee are given in Appendix 3.

This Sub-Committee expects that its recommendations will be consistent with the recommendations of the Toxic Substances Legislation Sub-Committee.

The current control measures for the storage of dangerous goods in Western Australia are described briefly below.

3.3.1 Explosives and Dangerous Goods Act 1961-1978

The **Explosives and Dangerous Goods Act 1961-1978** authorises the Governor to make regulations to control the manner of packaging, labelling and marking of containers of dangerous goods, and the licensing of premises where goods are stored. The Act prevails over all other Acts in matters concerning

explosives and dangerous goods. The legal framework of the Act does have the facility to prescribe conditions for the storage and handling of all dangerous goods, not just those covered by the following regulations:

- The **Explosives Regulations 1963** prescribe detailed conditions for the storage, importation, handling and inspection, manufacture, sale, conveyance, packing and labelling and use of explosives in all quantities.

- The **Flammable Liquids Regulations 1967** prescribe conditions for the storage, packaging, labelling and safety precautions which apply to flammable liquids. They also allow the Chief Inspector (Explosives and Dangerous Goods Division) to prescribe conditions for the storage of other dangerous goods in depots licensed for the storage of flammable liquids. These regulations, however, do not generally apply if all packages are less than 4 litres capacity.

- The **Dangerous Goods (Road Transport) Regulations 1983** are primarily directed towards the safe transport of dangerous goods. However, they have an impact on chemicals in storage because they prescribe standards for the labelling and packaging of dangerous goods. These requirements are consistent with the standards set out in the Australian Code for the Transport of Dangerous Goods by Road and Rail.

3.3.2 Poisons Act 1964 - 1981

Facility is given under the **Poisons Act 1964-1981** to make regulations to control the marking and labelling of containers of poisons and the precautions to be taken in the storage, handling or use of any poison.

The **Poisons Act Regulations 1965**, prescribe standards for the labelling of containers and for the handling and use of poisons. The extent of regulation of storage is that poisons be kept in locked cabinets or rooms used only for that purpose.

3.3.3 Mines Regulation Act 1946-1974

The **Mines Regulation Act 1946-1974** essentially gives inspectors broad powers to require that remedial action be taken where dangerous situations exist on mine sites. This can and has been applied to the storage of dangerous goods. There are no incompatibilities between the Sub-Committee's recommendations and the broad powers under this Act.

However, it is expected that Mines and other inspectorates will be consistent with each other in the interpretation of their respective legislation.

3.3.4 Factories and Shops Act 1963-1978

Regulations specific to certain chemicals or chemical processes have been made pursuant to the **Factories and Shops Act 1963-1978**, and several of these deal superficially with storage, labelling and packaging requirements. These include the **Asbestos Regulations 1978**, the **Benzene Regulations 1963**, the **Polyurethane Industry Regulations 1977** and the **Fibreglass Industry Regulations 1977**.

3.3.5 Health Act 1911

The **Pesticide Regulations** made under the **Health Act 1911** prescribe requirements for containers in which a pesticide is stored or sold and the labelling of such containers. Pesticide storage is dealt with superficially in the regulations.

3.3.6 Radiation Safety Act 1975

The **Radiation Safety (General) Regulations 1983** cover the labelling and storage of radioactive substances and the **Radiation Safety (Transport of Radioactive Substances) Regulations 1982** deal with storage, packaging and labelling during the course of transport.

3.3.7 Local Government Act 1960

Under sections 211 (i) and (k) of the **Local Government Act 1960**, by-laws can be made for prescribing the kind and quantity of flammable substances that may be kept, and for regulating the storage of flammable liquids. Uniform Building By-Laws made under the Act empower local governments to issue classification for buildings to be used for various purposes, including the storage of goods. Section 211 is rarely used because of the comprehensive provisions of the Flammable Liquids Regulations 1967. It may be desirable to rescind section 211 if comprehensive storage legislation is promulgated.

The accompanying matrix (table 1) indicates the extent to which the existing legislation in WA covers a variety of aspects of dangerous goods storage for different classes of goods.

It is evident from the matrix and the above summary of existing legislation, that control measures for the storage of dangerous goods contain serious deficiences in all areas except Class 1 (explosives), Class 3 (flammable liquids) and Class 7 (radioactive substances) goods. Although little or no legislation exists to control the other classes of

CHEMICALS CONTROL IN WESTERN AUSTRALIA - TABLE 1

CLASS	LABELLING AND PACKAGING	INFORMATION SYSTEMS	STORES CONSTRUCTION	STORAGE AREAS	CHEMICAL INCOMPATIBILITY
1. Explosives	Explosives Regs	Explosives Regs	Explosives Regs	Explosives Regs	Explosives Regs
2. Gases (Compressed)	Dangerous Goods (Road Transport) Regulations				
3. Flammable Liquids	Flammable Liquids Regulations Benzene Regs DG (RT) Regs		Flammable Liquids Regulations	Flammable Liquids Regulations	Flammable Liquids Regulations
4. Flammable Substances	Dangerous Goods (Road Transport) Regulations				
5. Oxidising Agents	DG (RT) Regs Polyurethane Industry Regs				
6. Poisons	Poisons Regs DG (RT) Regs Asbestos Regs Pesticide Regs				
7. Radioactive Substances	Radiation Safety (Transport of Radioactive Substances) Regs Radiation Safety (General) Regs		Radiation Safety (General) Regulations	Radiation Safety (General) Regulations	
8. Corrosives	DG (RT) Regs				
9. Miscellaneous	DG (RT) Regs				

dangerous goods, some pieces of legislation do have the potential to control the storage of some of these goods. The Poisons Act 1964 - 1981, for example, has the facility to make regulations with respect to the storage of poisons but this provision has not been used.

4.0 DISCUSSION

4.1 Options for Control

The Sub-Committee agreed that, ideally, voluntary adherence to codes of practice for the storage and handling of chemicals and other dangerous goods was highly desirable. Indeed, some large companies have instituted their own safe storage and handling programmes as one facet of their corporate strategy. On the other hand, many organisations do not have the time, expertise or resources to do so, even if they recognise the need and are positively inclined to safe working principles.

The concept of regulation of dangerous goods storage could imply yet another bureaucratic requirement. Nevertheless, the Sub-Committee felt that a regulatory approach was desirable, as it would;

a) have little effect on organisations already committed to safe working practices;
b) act as a stimulus to many organisations who would not otherwise institute such programmes;
c) ensure that organisations which implemented such programmes did not suffer cost disadvantages relative to those which did not;
d) give legal back-up to a responsible authority in recalcitrant cases.

The Sub-Committee believes that the development of codes of practice, combined with regulatory support and an educative approach by the regulatory authority is the most appropriate way of tackling the issue.

4.2 Degree of Implementation of Legislation

All premises where dangerous goods are handled in quantities above prescribed cut-off limits should be subject to the recommendations in this report, regardless of the nature, function and purpose of the premises. Those engaged in primary production, industry and commerce (including wholesale and retail) should be covered and any legislation should bind the Crown (ie. State Government departments and agencies). Commonwealth departments and instrumentalities operating in WA are not subject to State laws and regulations and this points to the desirability of complementary Commonwealth legislation. Since this reasoning is also applicable to the operations of the Commonwealth in other States, a corollary is the need for interstate uniformity (note section 4.3). The mechanism of cut-off limits will mean that it is unlikely that residential properties will be affected unless the occupier is carrying on a business.

The NSW Dangerous Goods Regulation was developed to cater for the relatively large companies operating in that State. If Western Australia is to develop legislation to control the storage of dangerous goods, consideration must be given to the smaller size of WA businesses. It could create

hardship for some WA businesses if they were to meet the requirements of some of the NSW Regulation. The principal means by which such requirements could be modified is through the specification of cut-off limits under which regulations would not apply. This would essentially mean that companies storing less than specified amounts of dangerous goods would be exempt from the requirements of the regulations.

Some cut-off points in the NSW Regulation could be considered too low for WA requirements, and special consideration of WA circumstances should be made when drafting any legislation. Consideration should also be given to the cut-off limits for mixed loads of goods of the same dangerous goods class or of different but compatible classes. NSW has devised a procedure for defining cut-off limits in these cases.

In addition consideration must be given to the extent to which existing premises would have to implement the requirements of any new legislation. Under a recent amendment to the Explosives and Dangerous Goods Act, the Chief Inspector has the authority to exempt any person from any provision of the Act, either absolutely or subject to conditions. The Act also provides avenues for appeal against any decision made by the Chief Inspector. Facilities such as these in legislation are considered adequate to cover the issue of the degree of implementation of legislative requirements for existing premises, or for exceptional circumstances.

4.3 Need for Interstate Uniformity

As discussed previously, most States in Australia are undertaking reviews of chemicals legislation with a view to updating or drafting legislation to control all aspects of chemicals use. Due to the considerable interstate trading in chemicals, it is important that such legislation be uniform, especially with respect to transport, labelling and packaging requirements. It is unrealistic to expect industry to conform to the different requirements of several States in which the goods may be manufactured, transported or used.

It is perhaps fortunate that NSW has comprehensive dangerous goods legislation in the form of the Dangerous Goods Act 1975 and Regulation 1978. These have been used to varying degrees as "model" legislation by States developing their own dangerous goods legislation. This in itself facilitates some uniformity between the States.

In addition, the Australian Code for the Transport of Dangerous Goods by Road and Rail has been developed with the intention that adherence to the Code will ensure near compliance of land transport with the requirement for transport by sea from Australian ports. It also ensures that Australian safety requirements are compatible with

international standards. To this end, the Code forms a basis for Commonwealth and State legislation. Compliance with the Code ensures uniformity in the areas of packaging, labelling and transport.

4.4 Use of Australian Standards

At present, Australian Standards receive comprehensive use in legislation enacted in Australia. In particular, the NSW Dangerous Goods Regulation 1978 makes reference to over thirty Australian Standards. The Sub-Committee recognises the important role Australian Standards play in legislation, but as a consequence of their continued review and update, outdated standards are often referred to in current legislation. To overcome this problem, an update mechanism should be provided in the legislation. If a revised Australian Standard is not acceptable (the exception), then the State should, by conscious action, delete the offending section by legislative action.

4.5 Licensing

At present the licensing of dangerous goods stores covers only explosives and flammable liquids (under the Explosives and Dangerous Goods Act). The scope of these licensing arrangements should be expanded to include other classes of dangerous goods. This will enable the recommendations in this report to be applied to a wide range of chemical stores, to the benefit of the organisations involved and to the wider community. These benefits should be reflected in safer working conditions and in favourable differential insurance rates.

4.6 Storage Site Location

In WA at present, dangerous goods storage and manufacturing facilities are often located in or near to residential areas. It is important that prior to construction of new dangerous goods storage or manufacturing facilities, consideration be given to the land zoning with regard to the potential hazard of the plant. The degree of separation to be maintained between chemical stores and residential properties or public facilities should be determined by the nature and quantity of materials stored.

Farmers are subject to unique circumstances and the Sub-Committee felt that they could be exempted from any licensing provisions, if adequate safety precautions were taken and the goods were not for resale. Such precautions should include significantly larger separation distances between individual stores, and between stores and residential areas, and limits on the quantities stored.

The NSW Dangerous Goods legislation contains no provisions for consideration of zoning under the provisions of local government town planning schemes. However, the NSW Department of Environment and Planning has recently released draft locational guidelines for the storage of liquid

petroleum gas at automotive retail outlets which consider this issue. The proposed Victorian Dangerous Goods Bill also covers this issue. Any proposed WA legislation should contain such provisions.

4.7 Storage Site Construction and Safety

In general, storage site construction and associated safety requirements are well covered by the NSW Dangerous Goods Regulation.

It is important that there be compulsory provision of suitable fire protection systems, fire fighting equipment, egress and the observance of fire prevention measures used for the storage of dangerous goods. Egress requirements of buildings used for the purpose should at least comply with the minimum requirements of the Western Australian Uniform Building By-Laws 1974, and similarly, fire hose reels and fire hydrant installations be installed in accordance with the above by-laws.

Consideration should be given to the provision of neutralising agents and adsorbents at storage facilities so that spills can be quickly and effectively managed. The implementation of such a requirement could be incorporated into a system whereby insurance premiums are reduced for facilities with adequate safety precautions.

In addition, consideration of building access, structure, specifications (for example: electrical wiring, ventilation, building material flammability) should be made prior to construction to ensure that the premises achieve the highest level of integrity in respect to fire safety.

Proposed building renovations or alterations to existing dangerous goods stores, and the construction of bunding, should be referred to appropriate State and Local Government authorities to ensure adequacy and safety.

4.8 Information Systems

One of the greatest criticisms by the general public, industry and trade unions, on dangerous goods control in Australia, is the lack of accessible information. It is important that not only bottles and packages containing dangerous goods have adequate information on the label, but that vehicles and buildings used to transport and store dangerous goods respectively, should be placarded. Moreover, the emergency service personnel must be kept aware of store content. Employees must be made aware of the dangers of handling chemicals, and trained in emergency action should an accident or fire occur.

The Sub-Committee considers that keeping accurate records of store contents, quantities and layout is very important. Such information should be readily available to the Fire Brigades Board and Police to enable suitable emergency

action. As previously mentioned, a licensing system for dangerous goods stores could incorporate such a scheme. Additional copies of such records should be maintained in an area on the premises, but removed from the store. Consideration should be given to the development of an emergency response scheme to deal specifically with chemical storage facilities, similar to the existing provisions of the WA Transport Emergency Assistance Scheme.

The NSW Dangerous Goods Regulation is adequate in the respect that all dangerous goods must be kept in premises licensed for that purpose, but there is no requirement that information on store contents be circulated to emergency service authorities.

The proposed Victorian Dangerous Goods Bill 1984, requires that information on dangerous goods stored at licensed premises be forwarded annually to the Chief Inspector and the responsible fire authority. The information required includes details of technical and chemical names of all goods stored, the quantity of each dangerous good, the type and capacity of each container in which the goods are kept and the extent to which each container is filled. The efficacy of such a proposal would depend on the turnover of goods in the store.

Placarding is an important concept in ensuring the safety of emergency service personnel and employees. Placards should identify hazards associated with store contents to enable correct action to be taken in an emergency and in addition, could include graphic symbols to ensure that non-English speaking personnel understand the requirements.

In addition to the above proposals, the Sub-Committee considers the display of a tactical fire plan would be of great assistance to emergency services in the event of a fire or other incident.

4.9 Labelling and Packaging

The Australian Code for the Transport of Dangerous Goods by Road and Rail lays down requirements for the packaging and labelling of an extensive range of dangerous goods. The Code has been essentially adopted under the WA Dangerous Goods (Road Transport) Regulations. The range of dangerous goods for which the WA Regulations apply is essentially the same as those under the Australian Code. Packages complying with the requirements of the Australian Code are deemed to comply with the WA Dangerous Goods (Road Transport) Regulations.

Although there is only minimal legislation to control the standards for packaging and labelling of containers of dangerous goods used at industrial sites, most dangerous goods must be transported by road or rail at some stage (the only exception would be with chemicals used in their place of manufacture, for example, site limited chemicals or

reaction intermediates). For site limited chemicals, there may be some circumstances under which some of the labelling requirements could be waived. The requirements of the Australian Code (as contained in the WA Dangerous Goods (Road Transport) Regulations 1983) cover these matters.

The Sub-Committee believes it important that specific requirements for the labelling and safe packaging of dangerous goods be introduced but that any such requirements must be compatible with those applicable to the transport of dangerous goods under the regulations to the Explosives and Dangerous Goods Act.

The Australian Code does not require labels to contain information concerning toxicity warnings and medical treatment. These matters are covered under WA legislation for poisons and pesticides only. The Sub-Committee considers the inclusion of this information, and directions on correct use and safety precautions, is vital in ensuring safety to workers and the general public.

There is no single body which an organisation designing a label for dangerous goods can consult, to ascertain what is required by legislation. A standing committee, with representation from all regulatory authorities is seen as a way of overcoming this problem. Such a committee could be created once the guidelines for label design have been established.

The ramifications surrounding the issues of label permanency and information were found to be far more complex than was thought originally. Appendix 4 to this report details some of the issues addressed by the Sub-Committee with respect to labelling. The Sub-Committee recommends that a working group be established to consider these questions in more detail.

4.10 Education and Training

Very few employees and managers have received training in the hazards associated with the handling of chemicals and other hazardous substances in the workplace. An essential aspect of the safe storage of dangerous goods is the training of employees in safe storage procedures and how to deal effectively with emergency situations. The NSW Dangerous Goods Regulation does address the training of personnel in that it requires licence holders, employers and vehicle owners to ensure that employees are adequately instructed as to the hazards involved in the handling of dangerous goods, and are competent to operate all safety equipment. The Sub-Committee recommends that any legislation introduced in Western Australia should include provision for the training of personnel on a regular basis. Moreover, data sheets containing information relevant to dangerous goods used in a workplace should be readily available to employees who handle the dangerous goods at that workplace.

4.11 Additional Requirements for Individual Classes of Goods

4.11.1 Explosives - Class 1

Explosives are currently well controlled in Western Australia under the Explosives Regulations. The Sub-Committee has not investigated the requirements related to Class 1 goods. A point to note however is that Dangerous Goods legislation in NSW and the Northern Territory includes control of explosives and preceded repeal of specific legislation to control explosives.

4.11.2 Compressed Gases - Class 2

In those clauses of the NSW Regulation which are specific to class 2 goods, much emphasis was placed on ensuring adequate fire protection, egress and the installation of alarm systems. The provisions of 4.7 covering storage, site construction and safety are considered adequate in respect to this matter.

An area in which the NSW Dangerous Goods Regulation was considered inadequate was in the use of bottled liquid petroleum gas (LPG). LPG bottles pose a serious threat in a fire. Some form of licensing of LPG bottle use on commercial premises or a requirement that mains gas only be used where it is available would help to reduce this problem. In addition, location of permanent LPG bottles should be referred to the Fire Brigades Board and noted on plans held on the premises.

The Australian Standard 1596 (The SAA Liquid Petroleum Gas Code) contains recommendations for the storage, handling and use of LPG and any regulations should be consistent with this standard.

4.11.3 Flammable Liquids - Class 3

The Western Australian Flammable Liquids Regulations have been in force since 1969 but are still adequate for their purpose.

In general, the NSW Regulation refers to the Australian Standard 1940 (The Flammable and Combustible Liquids Code). One important exception is that the NSW Regulation allows installation of petrol pumps in buildings under some circumstances. The Sub-Committee believes this should only be permitted in exceptional circumstances.

The Sub-Committee recommends that WA should adopt AS1940 for reasons of uniformity.

4.11.4 Flammable Substances - Class 4

There is no existing comprehensive control of Class 4 substances in Western Australia.

The NSW Regulation covers flammable substances adequately. However, building egress is again an important consideration and the number of doors for egress should at least meet the requirements of the WA Uniform Building By-Law 24.

Again, the installation of fire hose reels and fire hydrants should be in accordance with the authority having jurisdiction in this area.

Details of flammable substance store contents should be provided to the Fire Brigades Board and other emergency services to facilitate effective emergency action.

4.11.5 Oxidizing Substances - Class 5

The only mention of storage requirements for oxidizing substances in WA legislation is made in the Flammable Liquids Regulations in relation to co-storage with Class 3 goods. In addition, the Chief Inspector of Explosives and Dangerous Goods controls the conditions of storage of oxidizing agents intended for use in explosives manufacture. The authority to do this is contained in the Explosives Regulations 1963.

A point of concern with the NSW Regulation is that it allows the keeping of up to 100kg of pool chlorine in or on premises licensed for the sale of vehicle fuel. Although no incidents have occurred in WA the Sub-Committee recommends a significant reduction of the cutt-off limit contained in the NSW Regulation. (The quantity of pool chlorine currently permitted at service stations in WA is 50kg. This is controlled by the authority of the Flammable Liquids Regulations). Ideally, quantities of class 5 goods kept on these premises should be kept to a minimum.

4.11.6 Poisons - Class 6

Although WA does have a Poisons Act with the facility to create regulations to control the storage of poisons and infectious substances, this facility has not been used. In addition, the Explosives and Dangerous Goods Act has the ability to control the storage of Poisons (see section 3.3.1). Should regulations under one of the above Acts be introduced or should an overall dangerous goods act be enacted to include regulation of the storage of Class 6 goods, consideration would need to be given to establishing minimum quantities below which exemption from the regulations or Act is granted.

4.11.7 Radioactive Substances - Class 7

Given the special nature of radioactive substances and the comprehensive control of these substances in Western Australia, the Sub-Committee felt that existing statutes covering storage and labelling were adequate.

However, one concern that was raised in discussion with the Radiation Health Branch of the Health Department of WA is that numbers of unwanted or obsolete industrial devices containing radioactive sources have to be kept in long term storage because of the lack of an acceptable disposal method for long half life radioactive substances. These radioactive substances are encapsulated and are generally in a chemically inert form. As soon as the necessary facilities can be developed at the Radiation Health Branch, it is planned to consolidate the radioactive sources currently being stored by industry into more compact storage at the Branch.

4.11.8 Corrosive Substances - Class 8

Corrosive substances are covered under clauses 170 and 171 of the NSW Dangerous Goods Regulation. The Regulation does not specify a minimum limit for the bunding of class 8 goods so all stores for class 8 goods are required to be bunded according to Clause 170 (4)(b) of the Regulation. Appropriate limits, based on NSW experience, should be inserted into any proposed legislation. In general, Class 8 goods are treated in a manner similar to goods of Class 3 in the NSW Regulation.

Although the Explosives and Dangerous Goods Act contains provisions to enable regulations to control the storage of corrosives in Western Australia, no regulations for corrosives have been gazetted. Corrosives are seen as an area urgently in need of control because of their relative danger.

4.11.9 Miscellaneous Dangerous Substances - Class 9

Miscellaneous dangerous substances are defined as those substances which present a danger not covered by other classes of goods. Class 9 includes a number of substances and articles which present a relatively low transport hazard.

The NSW Regulation does not specify requirements particular to Class 9 goods. However, labelling and packaging of miscellaneous dangerous substances is covered under the Australian Code for the Transport of Dangerous Goods by Road and Rail and in addition the WA Dangerous Goods (Road Transport) Regulations control all aspects of packaging and labelling for transport of Class 9 goods.

Due to the ill-defined nature of class 9 goods, it is difficult to formulate recommendations specific to this class.

APPENDIX 1

Terms of Reference of the Community Consultative Committee on Chemicals

1. To act as a forum for advice, liaison and exchange of views with industry, unions and other community organisations on the notification, assessment and control of hazardous chemicals, goods and materials in Western Australia.

Nominal Membership of the Community Consultative Committee on Chemicals

- Department of Conservation and Environment
- Royal Australian Chemical Institute
- Confederation of WA Industry
- Australian Chemical Specialties Manufacturers' Association
- Australian Chemical Industry Council
- Conservation Council of Western Australia
- Trades and Labor Council (two nominees)
- Australian Consumers' Association
- Occupational Health Society
- Tertiary Educational Institutions (one nominee)
- Members of the WA Advisory Committee on Chemicals (ex officio)

Secretariat: Department of Conservation and Environment.

APPENDIX 2

Membership of the Stored Chemicals Sub-Committee

Dr B. Kennedy (Chairman)	Royal Australian Chemical Institute
Mr K. Price	Explosives and Dangerous Goods Division, Dept of Mines
Mr J. Exeter	Department of Industrial Affairs
Mr R. Hall/Mr W. Williamson	WA Fire Brigades Board
Mr B. Chesson	Chamber of Mines of WA
Mr D. Gray	Confederation of WA Industry
Mr R. Gargett/Mr P. Maisey	Primary Industry Association of WA
Mr P. McBride	Trades and Labor Council
Mr D. Drake-Brockman	Dept of Conservation and Environment
Ms N. Arrowsmith (Secretary)	Dept of Conservation and Environment

APPENDIX 3

Terms of Reference of the Toxic Substances Legislation Sub-Committee

1. Investigate and report on the need for upgraded or new legislation to control toxic substances in WA.

   Included in this prime term of reference would be the need to respond to particular moves at the national level for new legislation on chemicals as well as investigating the need for an overall 'Toxic Substances Control Act' in WA.

   Subsidiary terms of reference which provide the elements of a work program are set out below.

2. Review existing legislation and control procedures in Australia, particularly in Western Australia.

3. Review relevant overseas legislation and approaches noting especially common points and key elements of relevance to Western Australia.

4. Review current initiatives for chemicals assessment and control in Australia including proposed legislation, organisational arrangements and responsibilities for action.

5. Identify gaps, shortcomings and duplication in the Western Australian system.

6. Prepare proposals for amendments to the existing system including recommendations for new legislation.

Membership and Representation of the Toxic Substances Legislation Sub-Committee (1984).

Dr B. Hamilton (Chairman)	Department of Conservation and Environment
Mr D. Drake-Brockman	Department of Conservation and Environment
Mr G. Taylor	Health Department of WA
Mr P. Rutherford	Department of Agriculture
Mr J. Exeter	Department of Industrial Affairs
Ms S. Moore(Joint Secretary)	Office of Minister for Industrial Relations
Mr D. Halge(Joint Secretary)	Office of Minister for Industrial Relations

APPENDIX 4

Labelling and Packaging Issues

In the course of its deliberations, the Sub-Committee recognised that the issues surrounding label information and permanency were far more complex than was first thought and as a consequence, the Sub-Committee has recommended that a working group be established to more thoroughly investigate these issues.

The Sub-Committee discussed the following issues at some length and believes that any working group established should include these in its deliberations.

The inclusion of information on labels is a most important consideration in any review of dangerous goods labelling. Bottle and package size limits the quantity of information that can be included on labels and in addition, vast quantities of information are inclined to discourage users from reading the label thoroughly. However, adequate information is required to ensure user safety and suitable emergency and first aid procedures in the event of an accident. Consideration should also be given to the requirements of non-English speaking people.

The information requirement of the label also depends on the area of market/usage. Consumer packages primarily require information on correct use, first aid treatment and empty container disposal. Industrial packages, in addition to the above information, should include details on emergency procedures in the event of accidents, chemical compatibility warnings and the shelf life of package contents.

With reference to label permanency, it is important that the label be substantially unaltered for the shelf life of the contents. This includes consideration of Ultra Violet light stability, water resistance and package content resistance. UV stability is an aspect not covered by the NSW Dangerous Goods Legislation, the WA Dangerous Goods (Road Transport) Regulations 1983 or the Australian Code for the Transport of Dangerous Goods. Given the intensity of sunlight in parts of Western Australia, fading of labels can be a problem.

Adhesive quality of labels is also an important consideration. On its inspection tours, the Sub-Committee noticed that labels on containers of dangerous goods were peeling off in some cases. This can have serious consequences as labels are frequently placed over stencilled labels relevant to previous usage of the container and often involving different contents.

An aspect of package quality not addressed by legislation in Australia is that of UV stability of containers. The intense sunlight in parts of WA can cause premature degradation of plastics of which containers are manufactured. Consideration of this should be contained in any legislation prepared to control dangerous goods storage.