

Hazardous Substances and Dangerous Goods in NSW Health - Guidelines for Safe Use

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Summary The attached Guidelines are to be read in conjunction with Policy Directive PD2005_409 (NSW Health Workplace Health and Safety: Policy and Better Practice Guide) which provides the policy framework for the management of all workplace hazards including hazardous substances and dangerous goods. The attached Guidelines have been developed to provide assistance in managing risks specific to hazardous substances and dangerous goods. Implementation of these Guidelines will assist managers to meet their obligations under the relevant OHS legislation and NSW Health policy.

Replaces Doc. No. Hazardous Substances in NSW Public Health Care Facilities (Policy and Guidelines for the Safe Use) [PD2005_129]

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Applies to Area Health Services/Chief Executive Governed Statutory Health Corporation, Board Governed Statutory Health Corporations, Affiliated Health Organisations, Public Health System Support Division, Community Health Centres, Dental Schools and Clinics, NSW Ambulance Service, NSW Dept of Health, Public Health Units, Public Hospitals

Audience Managers, supervisors, employees and OHS advisors

Distributed to Public Health System, Community Health Centres, Dental Schools and Clinics, Health Associations Unions, Health Professional Associations and Related Organisations, NSW Ambulance Service, NSW Department of Health, Public Health Units, Public Hospitals, Tertiary Education Institutes

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Guidelines
for the
Safe Use of Hazardous Substances
and
Dangerous Goods in NSW Health

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1.0 About this document

- 1.1 Title** **Guidelines for the Safe Use of Hazardous Substances and Dangerous Goods in NSW Health**
- 1.2 Responsibility** Employee Relations
- 1.3 Version** June 2006
- 1.4 Updates & Feedback** Feedback is welcome and should be addressed to the Manager, Employee Relations Policy, NSW Department of Health.
- 1.5 Related Documents** A list of related internet sites and documents can be found in Section 11.12.

2.0 Introduction

2.1 About the Guidelines

Across NSW Health hazardous substances and dangerous goods are used in many areas including cleaning, disinfection, laundering, medical imaging, maintenance, anaesthesia and laboratory analysis. This document provides advice to assist employers ensure that they are effectively managing hazardous substances and dangerous goods in the workplace and meeting associated legislative requirements. It supports implementation of the NSW Health policy directive PD2005_409 *Workplace Health and Safety: Policy and Better Practice Guide*, and should be read in conjunction with that document.

The Guidelines will help managers, supervisors, staff and OHS advisers to prevent incidents associated with the use of hazardous substances and dangerous goods, and to effectively respond to incidents if they do occur.

The document includes key legislative requirements, sources of information on specific topics, information on when and how to seek expert advice, and a range of risk management tools that will assist facilities with their chemical management program and/or to develop more localised tools to meet specific needs.

2.2 Chemicals and Other Substances

Although this document covers hazardous substances (including articles that generate hazardous substances during their use eg timber products and welding rods) and dangerous goods, facilities are encouraged to use the Guidelines to manage all relevant substances used at work.

2.3 How the Guidelines are arranged

The Guidelines begin by providing information about how employers can identify hazardous substances and dangerous goods, how they are classified, and how they may be harmful to health. Information is also provided on the relationship between the two, and how legislation covering them may apply to therapeutic goods and scheduled poisons for clinical use.

The document then addresses the risk management process, including consultation, provision of instruction, information and training and continuous improvement. A number of tools are also provided in the appendices to assist with the risk management process.

2.4 Legislative Framework

2.4.1 Occupational Health and Safety Act 2000

The *Occupational Health and Safety Act 2000* (OHS Act) outlines the general duties of employers (as defined in the OHS Act), employees and suppliers to protect the health and safety of people at workplaces, including visitors and contractors, and to consult with employees.

2.4.2 Occupational Health and Safety Regulation 2001

The *Occupational Health and Safety Regulation 2001* (the Regulation) contains additional requirements on specific issues to support the Act. The Regulation adopts a risk management approach that requires the identification of hazards, assessment of risks and the elimination of risks or the implementation of control measures.

2.4.3 Relevant Codes of Practice

The National Occupational Health and Safety Commission (NOHSC) *National Code of Practice for the Preparation of Material Safety Data Sheets (2nd Edition)* provides an outline of the information required in a material safety data sheets (MSDS).

The WorkCover NSW *Code of Practice for Control of Workplace Hazardous Substances* provides detailed requirements for provision of information by suppliers and employers (as defined by the OHS Act), consultation, induction and training, risk assessment and control, environmental monitoring, health surveillance, employees' responsibilities and record keeping.

The WorkCover NSW *Storage and Handling of Dangerous Goods Code of Practice 2005* provides detailed requirements for the risk assessment and storage of dangerous goods including labelling, MSDSs, control measures, fire protection and emergency preparedness.

There are also several WorkCover NSW codes of practice for particular substances including pesticides and herbicides in non-agricultural workplaces, enzymatic detergent powders and liquids, and synthetic mineral fibres.

2.4.4 *Road and Rail Transport (Dangerous Goods) (Road) Regulation 1998*

Transport of dangerous goods by road should be in accordance with the above Regulation and the *Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code)*. The ADG Code requires the strength of containers used for transport to be proven by performance tests and labelled accordingly. The containers must have dangerous goods labelling and be shipped with documentation identifying the hazard to drivers and emergency workers. Transport contractors must follow safe work practices.

2.5 Key Definitions

Atmospheric monitoring

More commonly known as air monitoring, atmospheric monitoring is the use of a valid method to measure the concentration of airborne contaminants over a period of time. The most common monitoring location is 30 cm from the nose and mouth (this area is known as the breathing zone of a staff member).

Biological monitoring

Use of a valid method to measure chemicals or the effects of chemicals in body fluids, most commonly blood and urine.

Bund

An enclosed area used to prevent the spread of a chemical spill.

CAS Number

A number issued by the Chemical Abstracts Service as a unique way of identifying all chemical substances and some mixtures.

Chemicals

In this document the term chemical is defined broadly to include all hazardous substances, most dangerous goods and many other natural

2.5 Key Definitions (continued)

and synthetic substances.

Chemicals (continued)

The definition includes many common gases, liquids, solids, therapeutic goods and foodstuffs.

Chemical register

A list of dangerous goods, hazardous substances and other materials in the workplace with a copy of the relevant MSDS. Not to be confused with the site dangerous goods manifest.

Competent person

A person who has obtained knowledge and skills in the identification, assessment and control of hazards from hazardous substances and dangerous goods through training, qualifications and/or experience.

Dangerous goods

Regulated articles and substances (including explosives, gases and chemicals) that have been classified by United Nations criteria because they require particular care during transport. The same classification is also used to regulate the storage of these goods.

Dangerous goods manifest

A document that summarises the quantities and storage locations of dangerous goods held on a site. Not to be confused with the site chemical register.

Dangerous goods placards

Signs (including the HAZCHEM sign) that alert emergency services about the storage of dangerous goods in large volumes and provide information about the procedures to be followed during an incident.

Decanting

Transferring substances from one container to another.

Employer

Any person authorised to exercise the functions of the Employer of staff to which this Guidelines applies.

Fire-risk dangerous goods

Dangerous goods that burn readily or support combustion, including Class 2.1, Class 3, Class 4 and Class 5.

Hazard

A source or situation with a potential for harm in terms of human injury or ill health, damage to property, damage to the environment, or a combination of these.

Hazardous area

An area defined by the AS/NZS 2430 series of Standards where special precautions are required to avoid ignition sources because of the potential for an explosion of flammable vapour or combustible dust.

Hazardous substances

Regulated substances (including solids, liquids and gases) that have been classified by NOHSC criteria because they are hazardous to health and require particular care during use.

HAZCHEM placard

Warning placards placed at each entrance to a site to alert emergency

2.5 Key Definitions (continued)

services to the storage of dangerous goods in large volumes.

Health surveillance

The monitoring of individuals for changes in health due to chemical exposure.

Material Safety Data Sheet (MSDS)

A material safety data sheet (MSDS) is a document that describes the properties and uses of a substance with sections for identity, hazards, ingredients, first aid measures, Personal Protective Equipment, fire fighting measures, accidental release measures, handling and storage, exposure controls, physical and chemical properties, stability and reactivity, toxicological and ecological information, waste disposal and transport information and regulatory information. Also known as a safety data sheet (SDS).

Minor storage

Dangerous goods kept in minor storage quantities require more storage precautions than other substances, but generally do not require special construction such as bunded areas or fire-rated walls.

NSW Health

Consists of the NSW Department of Health, the NSW public health system, Institute of Psychiatry, Health Professionals Registration Boards and NSW Cancer Institute.

Package store

A store for dangerous goods kept in more than minor storage quantities that requires storage precautions such as separation distances, bunding, fire-rated walls, additional fire protection equipment and/or additional first-aid facilities.

Packaging group

A 3-tier system of ranking levels of risk with each class of dangerous goods. Packaging group I (PGI) goods have the greatest level of risk, packaging group II (PG II) goods have a medium level of risk and packaging group III (PG III) goods have a lower level of risk but still have a sufficient level of risk to require classification as dangerous goods.

Proper shipping name

A standard way of referring to dangerous goods on shipping documents and packages to avoid the confusion that can be caused by the use of trade names or other names for the same substance.

Public health organisation

Refers to an area health service, a statutory health corporation or an affiliated health corporation in respect of its recognised services.

Risk

The likelihood and consequence of a potential injury or harm occurring.

Risk assessment

The overall process of estimating the magnitude of a risk arising from a hazard, before deciding what actions will be taken.

Standard Operating Procedure (SOP)

Also known as Safe Work Practices (SWP) are step by step job instructions, developed in consultation with staff, on how to conduct a

task with minimal risk.

Subsidiary Risk

Some dangerous goods such as compressed oxygen can be classified into 2 classes. When this is the case, the substance is allocated to the class that presents the highest risk eg Class 2.2 in the case of oxygen, and a subsidiary risk group with the lower risk eg Subsidiary Risk 5.1 in the case of oxygen.

UN number (United Nations Number)

A 4-digit number assigned to a chemical substance or a group of substances with similar characteristics. The number allows for easier access to safety information across international borders without the need for translation of written text.

Use

In relation to a substance, means the production, handling, storage, transport or disposal of the substance.

Water Capacity

A standard way of measuring the size of a gas cylinder based on the volume of water that it can contain at room temperature.

3.0 Hazardous Substances

3.1 About this Section This section provides background information on how hazardous substances are harmful to health, how they are classified and how health facilities, managers and supervisors can identify whether substances they are using are classified as hazardous.

3.2 Classification of Hazardous Substances Hazardous substances are regulated materials that have been singled out for special attention by Chapter 6 of the *Occupational Health and Safety Regulation 2001*. They are classified by National Occupational Health and Safety Commission (NOHSC) criteria because they are hazardous to health and require particular care during use. They are classified if they are listed in the NOHSC document *List of Designated Hazardous Substances* or if they have properties that are described in the NOHSC document *Approved Criteria for Classifying Hazardous Substances*. They can affect health in the short-term such as a burn from a corrosive acid, or in the long-term such as causing cancer after years of exposure.

NOHSC has been superseded by ASCC (Australian Safety and Compensation Council) however publications still refer to NOHSC.

Hazardous substances are regulated because their use may present a higher risk of harm than other substances that might be used in the workplace. However, it should not be assumed that other substances are non-hazardous or completely safe to use, and it should be remembered that the *Occupational Health and Safety Regulation 2001* requires a risk assessment of all identified hazards that may pose a risk.

3.3 How to Identify Hazardous Substances at Work Practical ways for staff in health facilities to identify hazardous substances include:

- Checking labels provided by the supplier
- Checking MSDSs provided by the supplier
- Determining if there is an entry in the NOHSC Hazardous Substances Information System (HSIS) or in the NOHSC publication *List of Designated Hazardous Substances*
- Reviewing any reports of adverse health effects by staff or others
- From practical experience with similar substances
- Seeking expert advice from a third party.

Although it is a legislative requirement not all suppliers provide accurate or complete information about hazardous substances.

Where there is a disputed classification, employers have a range of options at their disposal including:

- Negotiating directly with the supplier
- Engaging a third-party expert to negotiate with the supplier
- Acting on the independent opinion provided by a third party expert
- Contacting the Chemical Safety Unit at WorkCover NSW.

The NOHSC publication *Approved Criteria for Classifying Hazardous Substances* can be used to classify substances, including mixtures, if this has not been done by the supplier.

Experts in the classification of hazardous substances may include:

- Toxicologists
- Occupational hygienists (<http://www.aioh.org.au>)

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- Occupational physicians (<http://www.racp.edu.au/afom>)
 - Chemical safety consultants and industrial chemists
 - OHS advisers.

However, the necessary expertise will depend on the type of substance being classified, and care should be taken to ensure that the expert chosen is appropriate to the task, appropriately qualified, and a member of the relevant body.

3.4 Risk and Safety Phrases

Risk and safety phrases are found on labels and in MSDS. A risk phrase is a statement that conveys a general description of the hazard of the product. An example is *R38 Irritating to skin*. A safety phrase is a label statement that provides guidance on precautions necessary for safe use of the product. An example is *S24 Avoid contact with skin*.

The NOHSC publication *List of Designated Hazardous Substances* publishes recommended risk phrases and safety phrases for the listed substances (also available at <http://www.nohsc.gov.au/hsis>). These phrases or similar warnings are required on labels printed by chemical suppliers. They should also be published in the MSDS for the product.

If risk phrases and safety phrases have not been provided for hazardous substances or dangerous goods, the supplier should be immediately contacted to provide the required information. If the information is not forthcoming, the product should not be used, and advice sought from WorkCover. If it is necessary to use the product in the interim, suitable warnings should be obtained from the NOHSC list or developed by a competent person (see above list).

3.5 Hazardous Substances and Dangerous Goods




There is a lot of overlap between these two categories. Some hazardous substances are also classified as dangerous goods. In this case the legislative requirements that apply to hazardous substances and the legislative requirements that apply to dangerous goods are both applicable to the substance. Generally speaking, hazardous substances are regulated to protect staff from health effects arising from their use in the workplace, while dangerous goods are regulated to protect the public, staff and the environment from harm related to the transport and storage of specified quantities of products that may pose a risk.



3.6 Summary of Key Actions: Hazardous Substances

In brief, health facilities are required to do the following for materials that are classified as hazardous substances:

- Ensure suppliers provide labels that include risk and safety phrases
- Ensure that containers of decanted product have a label that includes the name of the chemical, risk phrases and safety phrases
- Ensure that suppliers provide a MSDS
- Ensure that a MSDS for the substance is available in the site chemical register, and readily accessible to any staff member who could be exposed
- Ensure that a risk assessment for all processes that use the substance has been conducted in consultation with staff
- Introduce any required control measures
- Comply with all other requirements of the *Occupational Health and Safety Regulation 2001*, including the provision of adequate supervision and training.

Table 1. Hazardous Substances




Category	Logo	Examples	Relevant Codes
Irritant		skin sensitisers dilute acids & bases peracetic acid (1-5%)	<i>Occupational Health and Safety Regulation 2001</i> <i>WorkCover Code of Practice for the Control of Workplace Hazardous Substances</i> Guidelines for particular substances or processes
Corrosive		concentrated acids caustic (sodium hydroxide) sodium hypochlorite (bleach)	<i>Occupational Health and Safety Regulation 2001</i> <i>WorkCover Code of Practice for Control of Workplace Hazardous Substances</i> Guidelines for particular substances or processes
Harmful		respiratory sensitisers glutaraldehyde (2%) mineral turpentine	<i>Occupational Health and Safety Regulation 2001</i> <i>WorkCover Code of Practice for Control of Workplace Hazardous Substances</i> Guidelines for particular substances or processes




Category	Logo	Examples	Relevant Codes
Toxic		carcinogens methyl alcohol petrol	<i>Occupational Health and Safety Regulation 2001</i> <i>WorkCover Code of Practice for Control of Workplace Hazardous Substances</i> Guidelines for particular substances or processes
Very Toxic		chromic acid mercury sodium azide	<i>Occupational Health and Safety Regulation 2001</i> <i>WorkCover Code of Practice for Control of Workplace Hazardous Substances</i> Guidelines for particular substances or processes




4.0 Dangerous Goods




- 4.1 About this Section** This section outlines how dangerous goods are hazardous, how they are classified, how they can be identified by health facilities and what action is required.
- 4.2 Classification of Dangerous Goods** Dangerous goods are regulated goods that have been singled out for special attention by Chapter 6A of the *Occupational Health and Safety Regulation 2001*. They have been classified by United Nations criteria because they require particular care during transport, but the same classification system is used for storage purposes. They are classified by a listing in the Federal Office of Road Safety (FORS) document *Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code)* or because they have properties that are described in the technical appendices of that code. In general, dangerous goods have short-term hazards such as being explosive, flammable, reactive, toxic, corrosive and/or damaging to the environment.
- 4.3 How to Identify Dangerous Goods at Work** Practical ways for staff in health facilities to identify dangerous goods include:
- Viewing the label provided by the supplier
 - Viewing the MSDS provided by the supplier
 - Determining if the product is listed in the ADG Code
 - Reviewing any reports of adverse incidents by staff or others
 - Practical experience with similar substances
 - Seeking expert advice from a third party.
- As identified earlier, not all suppliers provide accurate up to date information about dangerous goods, and a similar approach to hazardous substances should be taken if a classification is disputed or information seems to be missing.
- The ADG Code can be used to classify substances, including mixtures, if the supplier has failed to do so.
- In addition to those groups identified in section 3.3, others who may be of assistance in the classification of *dangerous goods* include:
- Dangerous goods consultants (<http://www.aidgc.com.au>)
 - Radiation protection or health physics consultants.
- 4.4 Hazardous Substances and Dangerous Goods** As identified in section 3.5, there is a lot of overlap between these two classes of products. For example, the anaesthetic gas nitrous oxide meets the criteria for both categories, therefore the regulations applying to both classes are applicable. As a general rule, *dangerous goods* have been classified to control the transport and storage of dangerous goods and *hazardous substances* have been classified to control the use and handling of chemicals that are a hazard to health at work.




Table 2. Dangerous Goods Classes

Category	Logo	Examples	Relevant Codes
Class 1 Explosive		fireworks distress flares	<i>Explosives Act 2005</i> <i>Explosives Regulation 2005</i> <i>AS 2187.1 Explosives-Storage Transport and Use-Part 1: Storage</i> <i>Occupational Health and Safety Regulation 2001</i>
Class 2.1 Flammable Gas		LPG acetylene	<i>Occupational Health and Safety Regulation 2001</i> <i>AS/NZS 1596 Storage and Handling of LP Gas</i> <i>AS 3961 Liquefied Natural Gas-Storage and Handling</i> <i>AG 901 Code of Practice for NGV Refuelling Stations</i> <i>AS/NZS 2430 series (Classification of Hazardous Areas)</i> <i>AS 4332 The Storage and Handling of Gases in Cylinders</i> <i>AS 4289 Oxygen and Acetylene Gas Reticulation Systems</i> <i>AS 4041 Pressure Piping</i> <i>AS 2658 LP Gas-Portable and Mobile Appliances</i> Guidelines for particular substances or processes
Class 2.2 Non-flammable, Non-toxic Gas		oxygen nitrogen compressed air	<i>Occupational Health and Safety Regulation 2001</i> <i>AS 1894 The Storage and Handling of Non-Flammable Cryogenic Liquids</i> <i>AS 4332 The Storage and Handling of Gases in Cylinders</i> <i>AS 4289 Oxygen and Acetylene Gas Reticulation Systems</i> <i>AS 4041 Pressure Piping</i> <i>AS 2896 Medical Gas Systems</i> Guidelines for particular substances or processes

Category	Logo	Examples	Relevant Codes
Class 2.3 Toxic Gas		chlorine gas ozone	<i>Occupational Health and Safety Regulation 2001</i> <i>AS 4332 The Storage and Handling of Gases in Cylinders</i> <i>AS/NZS 2927 The Storage and Handling of Liquefied Chlorine Gas</i> <i>AS 4041 Pressure Piping</i> <i>AS 4452 Storage and Handling of Toxic Substances</i> Guidelines for particular substances or processes
Class 3 Flammable Liquid		petrol ethyl alcohol printing ink thinners	<i>Occupational Health and Safety Regulation 2001</i> <i>AS 1940 The Storage and Handling of Flammable and Combustible Liquids</i> <i>AS/NZS 3833 The Storage and Handling of Mixed Classes of Dangerous Goods</i> <i>AS/NZS 2430 series (Classification of Hazardous Areas)</i> <i>AS/NZS 2906 Fuel Containers-Portable-Plastics and Metal</i> Guidelines for particular substances or processes
Class 4.1 Flammable Solids		finely-divided metal powders phosphorous camphor	<i>Occupational Health and Safety Regulation 2001</i> <i>WorkCover Storage and Handling of Dangerous Goods Code of Practice 2005</i> <i>AS/NZS 3833 The Storage and Handling of Mixed Classes of Dangerous Goods</i> Guidelines for particular substances or processes

Category	Logo	Examples	Relevant Codes
Class 4.2 Spontaneously Combustible		cotton waste some activated carbons	<i>Occupational Health and Safety Regulation 2001</i> <i>WorkCover Storage and Handling of Dangerous Goods Code of Practice 2005</i> Guidelines for particular substances or processes
Class 4.3 Dangerous When Wet		sodium metal finely-divided zinc	<i>Occupational Health and Safety Regulation 2001</i> <i>WorkCover Storage and Handling of Dangerous Goods Code of Practice 2005</i> <i>AS/NZS 3833 The Storage and Handling of Mixed Classes of Dangerous Goods</i> Guidelines for particular substances or processes
Class 5.1 Oxidising Agents		hydrogen peroxide pool chlorine	<i>Occupational Health and Safety Regulation 2001</i> <i>AS 4326 The Storage and Handling of Oxidising Agents</i> <i>AS/NZS 3833 The Storage and Handling of Mixed Classes of Dangerous Goods</i> <i>Explosives Regulation 2005</i> (security sensitive ammonium nitrate)

Category	Logo	Examples	Relevant Codes
Class 5.2 Organic Peroxides		polyester resin catalyst	<i>Occupational Health and Safety Regulation 2001</i> <i>AS 2714 The Storage and Handling of Class 5.2 Substances (Organic Peroxides)</i> <i>AS/NZS 3833 The Storage and Handling of Mixed Classes of Dangerous Goods</i> Guidelines for particular substances or processes
Class 6.1 Toxic Substances		sodium cyanide some pesticides	<i>Occupational Health and Safety Regulation 2001</i> <i>AS/NZS 4452 The Storage and Handling of Toxic Substances</i> <i>AS/NZS 2507 The Storage and Handling of Agricultural & Veterinary Chemicals</i> <i>AS/NZS 3833 The Storage and Handling of Mixed Classes of Dangerous Goods</i> Guidelines for particular substances or processes
Class 6.2 Infectious Substances		Medical/clinical waste	<i>Occupational Health and Safety Regulation 2001</i> <i>PD2005_132 Waste Management Guidelines for Health Care Facilities</i> <i>PD2005_247 Infection Control Policy</i> <i>PD2005_596 Tuberculosis – Infection Control</i> <i>PD2005_354 WorkCover NSW Reporting Requirements: Occupational Exposure to Blood Borne Pathogens</i>

Category	Logo	Examples	Relevant Codes
Class 7 Radioactive Substances		medical isotopes	<i>Radiation Control Act 1990</i> <i>Radiation Control Regulation 2004</i> <i>AS 2243.4 Safety in Laboratories-Part 4: Ionising Radiations</i> <i>Occupational Health and Safety Regulation 2001</i> Guidelines for particular substances or processes
Class 8 Corrosive Substances		concentrated acids hypochlorite bleach alkaline cleaners	<i>Occupational Health and Safety Regulation 2001</i> <i>AS 3780 The Storage and Handling of Corrosive Liquids</i> <i>AS/NZS 3833 The Storage and Handling of Mixed Classes of Dangerous Goods</i> Guidelines for particular substances or processes
Class 9 Miscellaneous		some chemical kits some first-aid kits dry ice lithium batteries asbestos	<i>Occupational Health and Safety Regulation 2001</i> <i>AS/NZS 4681 The Storage and Handling of Class 9 Dangerous Goods</i> <i>AS/NZS 3833 The Storage and Handling of Mixed Classes of Dangerous Goods</i> NOHSC asbestos publications Guidelines for particular substances or processes

4.5	Dangerous Goods & Australian Standards	<p>In past years, compliance with Australian Standards for the storage of dangerous goods was a mandatory requirement of NSW regulations. This is no longer the case, but if a health facility does not comply with any aspect of the Standards the written risk assessment should document the reason for the variation and outline how the control measures that have been implemented provide the same or a better level of protection. Less-stringent minor storage conditions apply to any quantity of dangerous goods stored or kept on a site.</p> <p>The more detailed requirements for package stores or bulk stores apply to quantities in excess of 10-1000 kilograms or litres (depending on the class of goods, the packaging group and the way the material is delivered to site). A complete risk assessment of the storage of dangerous goods cannot be conducted without reference to the relevant Australian Standard.</p>
4.6	Dangerous Goods of Class 1	<p>Some chemicals can become explosive if abused or not handled or stored properly such as sodium azide, picric acid, ethers and ammonium nitrate, but these substances are not classified as explosives of Class 1. The <i>Explosives Regulation 2005</i> applies to the transport, storage and use of Class 1 dangerous goods and requires the licensing of individuals and organisations. A licence is not required for the use of distress signals, but a licence is required to keep more than 10 kilograms.</p> <p>Ammonium nitrate is a dangerous good of Class 5.1, but if this substance is present at a concentration of greater than 45%, except in solution, it is regulated as a security sensitive dangerous substance. Security sensitive ammonium nitrate is not permitted for garden use, but a licence is not required for the storage and use of up to 3 kilograms in a laboratory.</p>
4.7	Dangerous Goods of Class 3	<p>Dangerous goods of Class 3 include Class C1 combustible liquids such as diesel fuel. Guidance on the storage of Class C2 combustible liquids such as lubricating oil can be found in <i>AS 1940 The Storage and Handling of Flammable and Combustible Liquids</i>, but this class of substances is not classified as dangerous goods under the OHS Regulation 2001.</p>
4.8	Dangerous Goods of Class 7	<p>Dangerous goods of Class 7 are radioactive articles and substances. They include medical isotopes. Australian Standard <i>AS 2243.4 Safety in Laboratories Part 4: Ionising Radiations</i> applies to the storage and use of Class 7 substances in laboratories.</p> <p>The specific dangerous goods provisions (Chapter 6A) of the <i>Occupational Health and Safety Regulation 2001</i> do not apply to Class 7 substances, but the general risk management provisions in chapter 2 of the Regulation require all hazards to be identified and risks to be assessed and controlled, including radioactive substances. The <i>Radiation Control Regulation 2004</i> applies to radioactive substances.</p> <p>The requirements of NSW radiation legislation that apply to dangerous goods include (but are not limited to):</p> <ul style="list-style-type: none"> • Work on some premises and the use of some substances must be licensed by the Department of Environment and Conservation (DEC) • People who may be exposed to radiation as a result of their work must be informed of the hazard, any control measures and the name of their radiation safety officer • Radiation exposure must be kept below specified dose limits

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- Personal exposure monitoring must be conducted in medium-level and/or high-level radiation laboratories conducting scientific research using unsealed sources
 - Radiation warning signs are required in some circumstances
 - The DEC can require the decontamination of premises, installation of monitoring devices, appointment of a radiation safety officer or committee and/or preparation of a radiation safety manual
 - Freight consignments must be in accordance with the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) *Code of Practice for the Safe Transport of Radioactive Material (2001)*
 - Disposal of radioactive substances must be approved and records must be kept
 - Radiation consultants must be accredited by the DEC before they can advise on some, but not all, radiation matters.

4.9 Dangerous Goods Placarding

The *Occupational Health and Safety Regulation 2001* and the *Radiation Control Regulation 2003* require site occupiers to signpost package stores and bulk tanks with dangerous goods placards if there are dangerous goods or radioactive substances in excess of defined placarding quantities. The quantities apply to individual package stores and bulk tanks but do not apply to fuel tanks on vehicles or portable equipment. The placarding quantities are outlined in Table 3.

If the quantities of dangerous goods kept on any site exceed the placarding quantity a HAZCHEM placard is required at every entrance that might be used by emergency services. Exceptions include Class 7, bulk containers labelled for transport and less than 10 000 litres of bulk Class C1 combustible liquids kept in a separated area.

A dangerous goods placard is required if the quantities of dangerous goods (other than Class 7) kept in any bulk tank or package store exceed the placarding quantity.

Where placards are required, they must be:

- Placed on or next to each bulk container or storage area
- Placed at all entrances to buildings if dangerous goods are kept inside
- The size and colour specified in the Regulation
- Clearly visible from all approaches
- Clean, in good order and unobstructed
- Revised if the use of dangerous goods changes
- Removed if the dangerous goods are removed.

Other signs or writing must not distract attention from the placards. Placards can be placed in any location if there is written consent from relevant emergency services and a copy of that consent is readily available to WorkCover NSW.

Table 3. Dangerous Goods Placarding Quantities

Class	Placarding Quantity
Class 2.1	500 litres (<i>water capacity</i>)
Class 2.2	5000 litres (<i>water capacity</i>) 2000 litres (<i>water capacity</i>) if subsidiary risk 5.1 1000 litres (<i>water capacity</i>) if a cryogenic fluid
Class 2.3	50 litres (<i>water capacity</i>)
Class 2 (aerosols)	5000 litres (<i>water capacity</i>)
Classes 3-8	50 kg and/or L (packaging group I) 250 kg and/or L (packaging group II) 1000 kg and/or L (packaging group III) 1000 kg and/or L (total of mixed packaging groups)
Class 7	Any quantity of a <i>radioactive substance</i> that requires a licence
Class 9	1000 kg and/or L (packaging group II) 5000 kg and/or L (packaging group III) 5000 kg and/or L (total of mixed packaging groups)
Mixed Classes, if no individual class exceeds the placarding quantity	5000 kg and/or L if aerosols are present 5000 kg and/or L if Class 2.2 (not subsidiary risk 5.1) is present 5000 kg and/or L if Class 9 packaging group II is present 2000 kg and/or L in all other cases
Combustible liquids	1000 L if Class C1 stored with <i>fire-risk dangerous goods</i> 10 000 L for Class C1 in an isolated bulk store (such as a tank) 50 000 L for Class C1 in an isolated package store No requirement to placard Class C2 combustible liquids

4.10 Dangerous Goods Notification and Site Manifests

The *Occupational Health and Safety Regulation 2001* requires site occupiers to prepare a site dangerous goods manifest and notify WorkCover NSW of the presence of dangerous goods if kept in excess of defined manifest quantities. The site chemical register is not sufficient, and preparation of a separate dangerous goods manifest is required. The quantities apply to the total volume of dangerous goods on site, including goods in process but not including those found in vehicles and portable equipment. The manifest quantities are identified in Table 5.

The *Occupational Health and Safety Regulation 2001* specifies what information must be included in the site dangerous goods manifest, and is summarised below:

A sample site dangerous goods manifest can be found in Section 11.10.

- The site address and the name of the site occupier
- The preparation or revision date
- Emergency contact information for at least 2 people
- A plan of the premises with a location code for all storage areas
- A summary list with the maximum quantity of each class, each packaging group, combustible liquids and each type of goods that are too dangerous to be transported
- For bulk tanks, but not intermediate bulk containers, the manifest must include the location code, tank type (above ground, underground), proper shipping name (for dangerous goods) and the words Combustible Liquid for Class C1 combustible liquids
- For packaging group I or Class 2.3 substances in package stores the manifest must include the location code and the proper shipping name.

Table 4. Sample Dangerous Goods Placards





<p>Site Entrance Placard</p> 	<p>Bulk Tank Placard</p> 
<p>Package Store/Building Placard</p> 	<p>Combustible Liquids Placard</p> 

Table 5. Dangerous Goods Manifest Quantities

Class	Manifest Quantity
Class 2.1	5000 litres (<i>water capacity</i>)
Class 2.2	10 000 litres (<i>water capacity</i>)
Class 2.3	500 litres (<i>water capacity</i>)
Class 2 (aerosols)	10 000 litres (<i>water capacity</i>)
Classes 3-8	500 kg and/or L (packaging group I) 2500 kg and/or L (packaging group II) 10 000 kg and/or L (packaging group III) 10 000 kg and/or L (total of mixed packaging groups)
Class 9	10 000 kg and/or L
Mixed Classes	10 000 kg and/or L (in addition to other requirements)
Goods to dangerous to transport	Notify any quantity
Class C1 (combustible liquids)	10 000 L if stored with <i>fire-risk dangerous goods</i> 100 000 L if stored in isolation
Class C2 (combustible liquids)	No requirement to notify

The dangerous goods manifest must be located in consultation with the local fire brigade and revised as soon as possible after any changes to the quantities kept or storage locations.

In addition to location codes the *Occupational Health and Safety Regulation 2001* requires the plan of the premises to include the following features:

- Location of storage areas for placard quantities of dangerous goods in bulk tanks
- Location of storage areas for placard quantities of dangerous goods in package stores
- Location of areas where dangerous goods are used in manufacture
- Location of areas where dangerous goods in transit may be kept
- Location of site entrances
- Location of essential site services (fire services, isolation points)
- Location of the site manifest
- Location of all drains
- A description of the occupancy on adjoining sites.

A sample site plan can be found in Section 11.11.

4.11 Summary of Key Actions: Dangerous Goods

The following is a simple checklist to assist employers meet legislative requirements in relation to substances that are classified as dangerous goods:

- Are deliveries of dangerous goods in accordance with the ADG Code?
- Are shipments from health facilities labelled and packaged in accordance with the ADG Code?
- Is a MSDS available for all relevant substances in the site chemical register?

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- Has a risk assessment for all uses of the dangerous goods (storage in particular) been conducted in consultation with staff and their representatives?
 - Have the required risk elimination or control measures been introduced?
 - Is there a suitable and adequately maintained fire protection system and other safety equipment readily available?
 - Is there a written emergency plan that has been developed, implemented and maintained in consultation with the fire brigade if the dangerous goods kept on site exceeds the manifest quantity?
 - Are HAZCHEM placards displayed if the dangerous goods kept on site exceed any listed placarding quantity?
 - Are radiation warning signs displayed near any radioactive substances that require a licence?
 - Is there a site manifest in the required format if the dangerous goods kept on site exceed the manifest quantity?
 - Has the manifest been located in consultation with the fire brigade?
 - Has WorkCover NSW been notified on the official form if the dangerous goods kept on site exceed the manifest quantity?
 - Is there a system for ensuring that all plant, equipment and containers are free from dangerous goods or otherwise made safe when they are no longer needed?
 - Is there a system for ensuring that radioactive substances are transported, stored, used, handled and disposed of in accordance with the *Radiation Control Regulation 2004*?
 - Is there adequate supervision for those working with dangerous goods?
 - Is there provision of adequate information, instruction and training for those working with, or supervising those working with, dangerous goods?
 - Is there an effective system in place for managing an incident relating to dangerous goods that includes immediate incident minimisation and control measures, detailed investigation as to what caused the incident, review of existing control measures and a continuous improvement feedback loop?
 - Are investigations documented and records kept for at least five years?

5.0 Therapeutic Goods

- 5.1 About this Section** This section outlines how the hazardous substances and dangerous goods legislation applies to therapeutic goods and scheduled poisons for clinical use.
- 5.2 Therapeutic Goods and Hazardous Substances** Some therapeutic goods are also classified as hazardous substances. For example, if a medicine contains more than 0.1% of tamoxifen, a proven cause of human cancer, the mixture will be classified as a hazardous substance because it is *toxic*. The *Occupational Health and Safety Regulation 2001* applies to all therapeutic goods that are also hazardous substances when they are prepared, used, handled or stored as part of a work activity. The Regulation does not apply to therapeutic goods for personal use.
- 5.3 Therapeutic Goods and Dangerous Goods** Some therapeutic goods are classified as dangerous goods. For example, if a cough mixture contains more than 23% ethyl alcohol, a flammable liquid, the mixture will be classified as dangerous goods of Class 3 because it is flammable.
- 5.4 Therapeutic Goods Guidelines** In addition to complying with the *Poisons and Therapeutic Goods Regulation 2002* health facilities should take the following action for therapeutic goods or scheduled poisons that are also classified as hazardous substances and/or dangerous goods:
- Ensure that suppliers have provided adequate labels, adequate packaging and an adequate MSDS (transitional period for providing MSDSs for dangerous goods ends 1 September 2006)
 - Where a supplier fails to provide an MSDS, advice should be sought from WorkCover NSW. In the absence of a supplier provided MSDS other sources of information will need to be accessed to assist in the risk assessment process
 - Where appropriate, ensure that all policies and procedures for the elimination or control of hazardous substances and dangerous goods are also applied to the elimination or control of risks from therapeutic goods classified as a hazardous substance or dangerous good
 - Ensure that any risk assessment for cytotoxic drugs is in accordance with WorkCover NSW guidelines and NSW Health policy directives relating to cytotoxic drugs.

6.0 Consultation

6.1 About this Section This section outlines consultation requirements in relation to the management of dangerous goods and hazardous substances in the workplace, consistent with relevant provisions of the *Occupational Health and Safety Act 2000* and the *Occupational Health and Safety Regulation 2001*.

6.2 Hazardous Substances and Dangerous Goods Consultation Guidelines Risk assessments and processes for the use and management of hazardous substances and dangerous goods in the workplace must be developed in consultation with staff and their representatives. Staff must also be consulted prior to the introduction of new hazardous substances or dangerous goods and prior to making any changes to premises, plant or systems of work that may impact on the use of dangerous goods or hazardous substances.

Existing consultative arrangements may not be sufficient, therefore further discussions with staff may be necessary to determine arrangements more suitable to the subject matter. For example, a consultative committee with specialist skills may be required. Detailed information on the consultation process is provided in Section 6 of NSW Health policy directive *PD2005_409 Workplace Health and Safety Policy and Better Practice Guide*.

Key steps of the consultation process include the following:

- Establish an agreed framework for consultation about hazardous substances and/or dangerous goods matters
- Consult with staff as per agreed arrangements prior to introducing new hazardous substances or dangerous goods to the site
- Conduct risk identification and assessment activities in consultation with staff, as per the agreed arrangements
- Identify and implement risk control measures for the risks associated with hazardous substances and dangerous goods in consultation with staff, as per the agreed arrangements
- Where dangerous goods are in the workplace in an amount that exceeds the manifest quantity, a written emergency plan must be developed in consultation with the fire brigade.

For more information on consultation, see the WorkCover Consultation Code of Practice.

Staff are encouraged to raise concerns or issues related to hazardous substances and/or dangerous goods in the first instance directly with managers or other delegated officers to allow an opportunity to resolve the issues prior to going to an external body.

7.0 Information, Instruction, Training and Notification

7.1 About this Section This Section outlines legislative requirements for the collection and provision of chemical safety information, instruction and training relating to the safe use of hazardous substances and dangerous goods, including labelling, chemicals registers, MSDSs, notification and the identification of piping, conduits and ducts. Guidance is provided to assist health facilities develop and implement appropriate local procedures.

7.2 Labelling Guidelines

7.2.1 What Containers Should be Labelled?

The *Occupational Health and Safety Regulation 2001* requires hazardous substances and dangerous goods to be labelled. This section outlines guidance on the labels that should be provided by suppliers and on the labels for decanted containers used on site.

Sample labels can be found in Section 11.1.

All packages and containers should be labelled to the extent practicable, including the primary container and any containers that are used for decanting or mixing. Even containers holding a substance such as water should be labelled so they can be easily distinguished from containers holding hazardous substances and/or dangerous goods.

Packages of dangerous goods for transport need to be labelled in accordance with the ADG Code. The required information includes the UN Number, proper shipping name and class diamond. It is good practice to include the packaging group as well. Shipping documentation may also be required.

If health facilities are not able to determine the labelling and documentation requirements for consignments of dangerous goods, information may be available from:

- Courier and transport companies
- Companies that specialise in the packaging, handling and shipping of dangerous goods
- Dangerous goods transport consultants.

7.2.2 Who is Responsible for Labelling?

Suppliers are responsible for labelling containers shipped to workplaces. However, where the health facility decants substances into other containers before use, it should ensure the appropriate label is attached. If labels from the supplier are not available (either removed from an empty container or provided by the supplier as a service) a new label with the same (or better) information should be prepared by the health facility.

Containers must remain correctly labelled until completely free of hazardous substances and/or dangerous goods. Labels that have been removed, fallen off, or have become unreadable should be replaced. Once a container is completely cleaned and/or purged, the label must be removed or obscured so that no one is misled about the contents. The organisation that consigns shipments of *dangerous goods* for transport is responsible for labelling these packages. Health facilities can be the consignor in some cases.

If required, expert advice is available from chemical safety consultants, specialist dangerous goods transport contractors, other transport contractors and couriers.

7.2.3 What Information is Required on Labels?

Containers holding substances or mixtures that are not hazardous substances or dangerous goods such as water and foodstuffs need only be labelled with the contents such as sugar for use in a kitchen.

Containers holding substances or mixtures that are hazardous substances need to be labelled with risk phrases and safety phrases in addition to the chemical name. Although all containers should be labelled to the extent practicable, the *Code of Practice for the Control of Workplace Hazardous Substances* allows hazardous substances that are decanted and consumed immediately, to be used without a label.

Containers holding substances or mixtures that are dangerous goods need to be labelled with the UN Number, proper shipping name and class diamond in addition to contents/product name. It is good practice to include the packaging group, concentration and date as well.

7.2.4 Unlabelled Containers

Where a substance is found in an unmarked container:

- Staff should be consulted in an effort to determine the contents of the container
- A suitable label should be attached as soon as possible if the product is positively identified
- A risk assessment is required if the contents cannot be readily identified
- Chemical analysis may be required before it can be disposed of safely.

Expert advice is available from chemical waste contractors, occupational hygienists, chemical safety consultants and/or the DEC.

7.3 Material Safety Data Sheet (MSDS) Guidelines

7.3.1 What Substances Need a MSDS?

The OHS Regulation 2001 requires safety information in the form of a MSDS for hazardous substances and dangerous goods. This section provides guidance on the provision of MSDSs at health facilities.

The *Occupational Health and Safety Act 2000* requires suppliers to provide information about the safe use of their products. It also requires employers to provide information to staff. In most cases, the information can take any form, but in the case of hazardous substances and dangerous goods (except Class 1, Class 6.2 and Class 7) the information must be in the form of a MSDS.

7.3.2 Who is Responsible for Providing the MSDS?

The *Occupational Health and Safety Regulation 2001* requires suppliers, but not retailers, of hazardous substances to provide a MSDS on or before the first supply of the product to a customer. If a MSDS has not been provided, the supplier should be contacted with a request for the most up-to-date document. The MSDS must be less than five years old.

A sample supplier MSDS request form is provided in Section 11.2.

It is not always easy to obtain the required information. As an example, MSDSs are required for therapeutic goods that are also hazardous substances, but some pharmaceutical companies are not aware that provision of a MSDS is mandatory.

In cases where a MSDS has not been provided the following options should be considered:

- Request a MSDS from the supplier or manufacturer in writing and follow up with a telephone call
- Use information from other sources in the interim
- If practicable, purchase goods only from suppliers who provide quality information
- Contact WorkCover NSW.

For some substances the preparation of a MSDS is not common practice eg therapeutic goods, chemical wastes generated in laboratories, chemical reagents mixed for use in a laboratory. In these cases, sufficient information will need to be obtained from other sources to enable a satisfactory risk assessment of work activities using these substances.

In some cases the health facility may become the supplier and will have responsibility for the preparation of the MSDS eg mixtures formulated on site in laboratories, pharmacies or elsewhere, and issued for use in other parts of a facility.

The quality of the information in a MSDS prepared by a manufacturer or importer is an important issue if legal liability for an incident needs to be assessed. For this reason, employers should not alter information on the MSDS.

7.3.3 What Information is Required on a MSDS?

Unfortunately, MSDSs provided by suppliers do not always provide quality information. Consumer demand is the best means of improving this situation by giving preference to suppliers who do provide quality information. Product information leaflets and product specification sheets do not provide enough safety information.

As a basic quality check, a MSDS should have the following features:

- The product name that is listed on the label will also be listed on the MSDS
- The name, address and telephone number of the Australian supplier
- It will list risk phrases and safety phrases if the substance is a hazardous substance
- It will include possible health effects and precautions for use
- It will list the UN Number, proper shipping name and packaging group if the substance is classified as dangerous goods
- It will be dated and 5 years old or less
- It will be in the format recommended by NOHSC.

See also 'MSDS' in Section 2.5 – Definitions for additional information on what should be contained in an MSDS.

7.4 Chemical Register Guidelines

A sample chemical register index can be found in Section 11.4.

7.4.1 What must go in a Chemical Register?

The *Occupational Health and Safety Regulation 2001* requires employers to keep a register of hazardous substances and dangerous goods. This section provides guidance on the preparation of site chemical registers. A chemical register must be established and maintained in all health facilities where hazardous substances and dangerous goods are used.

One chemical register is permitted for both types of substance, but a chemical register is not the same as a dangerous goods manifest (see 4.10). The register should be updated as new substances are introduced or if the use of a substance is discontinued. A purchasing policy is recommended at each health facility to ensure that a MSDS is obtained when necessary, whether the purchase was made centrally or locally.

A chemical register must include the following information:

- A list of hazardous substances and dangerous goods used at the workplace
- The latest MSDS from the supplier of each product.

A good chemical register will also have the following features:

- An index to all of the contents
- A list that includes other chemicals and other substances found on site
- A list that includes goods that can generate hazardous substances when used, such as timber products and welding rods
- Notations showing where the product is used and/or stored
- Notations showing the maximum quantities kept
- Notations that identify hazardous substances
- Notations that identify dangerous goods
- Notations of risk assessments where no special control measures are required
- Notations on storage requirements eg what items should not be stored near one another.

7.4.2 What Types of Chemical Registers are Permitted?

Note: Consideration is currently being given to the feasibility of engaging a chemical information management database

A chemical register should be accessible to all staff, contractors and others who use or might be exposed to the listed substances at all times during their hours of work. It can take a range of formats including, but not limited to, an indexed paper file, a collection of documents in plastic sleeves, or a computer database.

If health facilities rely on computer database systems they should satisfy the following conditions:

- A database vendor that does not provide MSDS authorised by the substance supplier should carry adequate liability insurance
- The database must have the latest information - if new information is available but the register is out-of-date then the employer can be prosecuted rather than the database vendor
- Computer terminals must be available in work areas at all times when work is conducted
- Staff who conduct the work must be able to access the database or be able to obtain a copy of the relevant MSDS in a reasonable time
- The contents of the register should be backed up and arrangements

must be made for the contents to be made available in the event of computer failure.

7.4.3 Where Should the Chemical Register be Located?

The location of chemical registers should be determined in consultation with staff, and be accessible to all relevant staff during working hours, which in most facilities will mean 24 hours. Central registers are usually located with OHS staff, though in complex workplaces it may be advisable to keep local chemical registers.

Examples of possible locations include:

- OHS and/or risk management units
- Fire safety office
- Security, switchboard or near fire panel or main entrance
- Human resources (HR) department
- Work areas eg operating theatres, chemical stores, cleaner's rooms, laboratories, dispensing areas etc
- In vehicles such as ambulances and maintenance trucks
- Clearly marked locations at each end of a floor in a multi-storey building.

7.4.4 Records

All relevant records including MSDS and information used as part of a risk assessment should be retained in line with the requirements of Government Disposal Authority (GDA) 5.

7.5 Identification of Piping, Conduits & Ducts

Hazardous substances and dangerous goods contained in piping, conduits or ducts should be identified in accordance with *AS 1345 Identification of the Contents of Piping, Conduits and Ducts*.

Examples at health facilities include:

- Medical gas pipelines
- Natural gas pipelines
- Fuel pipelines
- Chemical dosing pipelines
- Exhaust flues containing hazardous vapours.

The *Occupational Health and Safety Regulation 2001* requires employers to ensure that the identity of any hazardous substance contained in a process or reactor vessel is notified to any person who could be exposed to the substance. Equipment of this type is not common at health facilities. A hazard label is recommended for smaller items of equipment that contain hazardous substances and/or dangerous goods.

7.6 Instruction, Information and Training Guidelines

The *Occupational Health and Safety Regulation 2001* requires employers to provide instruction, training and information to any person who may be exposed to a risk to health and safety at the employer's place of work. This section provides guidance on hazardous substances and dangerous goods training at health facilities.

7.6.1 What Instruction, Information and Training is Needed?

Provision of instruction, information and training is an essential component of any incident prevention strategy or risk control measure. Induction training is required before the start of work, training is required for particular tasks and ongoing training is required as a part of a process of continual improvement.

The purpose of providing instruction, information and training to staff who work with hazardous substances and dangerous goods is to ensure they are:

- Made aware of the hazards
- Made aware of the risks involved in the method of use
- Made aware of the controls used to minimise these risks
- Made aware of spill control, emergency response and incident reporting procedures
- Capable of safely and competently performing their duties.

The *Code of Practice for the Control of Workplace Hazardous Substances* recommends curriculum content for training programs. The level of detail required needs to be determined by a risk assessment.

Content of the training can include:

- Labelling requirements and related information
- MSDS requirements and related information
- The hazards, health risks, routes of exposure and the identified staff exposure to the substances in use
- The risk assessment process, procedures for working safely, use and maintenance of control measures, use and fit of PPE
- Emergency procedures, spill response, first-aid procedures, incident reporting procedures
- Protocols for accessing results of environmental and/or biological monitoring
- Consultation requirements of the *Occupational Health and Safety Regulation 2001*
- Supplier, employer and staff duties under the *Occupational Health and Safety Regulation 2001*.

Respirator training in accordance with *AS 1715 Selection, Use and Maintenance of Respiratory Protective Devices* is required for staff who may use this form of protection. Training is also recommended if other forms of PPE are used.

Staff who have input into the hazardous substances and dangerous goods program may require additional training in specialist areas such as:

- How to classify pure substances and mixtures as hazardous substances and dangerous goods
- How to prepare labels and/or MSDSs
- How to establish and maintain a chemical register
- The processes involved in risk management
- How to conduct suitable and sufficient risk assessments for hazardous substances and dangerous goods.

The *Code of Practice for the Control of Workplace Substances* recommends that hazardous substances training is subject to evaluation

and that the curriculum is reviewed periodically.

7.6.2 Training Records

The *Code of Practice for the Control of Workplace Substances* recommends that training records, including on-the-job training records, are kept for 5 years and should include:

- Trainer name
- Participant name/s
- Date of training
- Course outline.

7.7 Notification Requirements

7.7.1 Notification to Staff

Staff must be notified in the following circumstances:

- Clause 166 of the *Occupational Health and Safety Regulation 2001* requires the medical practitioner who conducts health surveillance to notify the staff member of, and provide an explanation of, the results.
- On the resignation of a staff member clause 170 of the *Occupational Health and Safety Regulation 2001* requires the employer to provide a written statement if there has been exposure or likely exposure to a prohibited or notifiable carcinogenic substance (clause 158).
- Clause 18 of the *Radiation Control Regulation 2003* requires staff to have access to any radiation exposure records when at work and requires employers to provide a copy of that record to a staff member if they terminate employment.

7.7.2 Notification of Dangerous Goods

Site occupiers are required to notify WorkCover NSW:

- If the volume of dangerous goods kept on site exceeds the manifest quantity
- Within 7 days of abandoning an underground tank.

7.7.3 Notification of Proposed Work

The *Occupational Health and Safety Regulation 2001* requires employers to notify WorkCover NSW of the following types of work:

- Work involving the use of notifiable or prohibited carcinogenic substances such as cyclophosphamide (clause 158)
- Lead risk work (clause 199)
- Bonded asbestos removal work (clause 317).

Friable asbestos removal work requires a permit from WorkCover NSW).

Notification forms are available from WorkCover. For on-off work a notification is required each time, but for ongoing work, such as the use of cyclophosphamide, one notification will cover all uses for five years. One notification will cover all departments at each site, but more than one notification is required if an employer uses a substance on more than one site.

7.7.4 Notification of Incidents

Clause 165 and clause 166 of the *Occupational Health and Safety Regulation 2001* require medical practitioners to notify WorkCover NSW of adverse health surveillance results if the substance is one of those

listed in the Regulation.

Part 12.1 of the *Occupational Health and Safety Regulation 2001* requires employers to notify WorkCover NSW of a number of occurrences related to hazardous substances and dangerous goods including the following:

- A work-related injury or illness, supported by a medical certificate, that involves more than 7 continuous days off work
- A spill or incident resulting in exposure or potential exposure of a person to a notifiable or prohibited carcinogenic substance
- Removal of workers from lead-risk work because of high blood lead levels
- An uncontrolled escape of dangerous goods
- An occurrence that involves a risk of escape of dangerous goods.

Section 86 of the OHS Act 2000 also specifies WorkCover notification in relation to certain incidents at the place of work.

These include:

- Incidents that have resulting in a person being killed
- Incidents prescribed in Clause 344* of the OHS Regulation.

*Part 12.2 (Clause 344) of the OHS Regulation prescribes additional serious incidents that may require non-disturbance of places and plant in serious incidents.

Clause 33 of the *Radiation Control Regulation 2003* requires employers to notify the DEC if specified radioactive substances are involved in an incident, lost or stolen.

7.7.5 Notification of Industrial Chemicals

The *Industrial Chemicals (Notification and Assessment) Regulations 1990* requires industrial chemicals manufactured or imported into Australia to be listed on the *Australian Inventory of Chemical Substances* (AICS) or assessed prior to use by NICNAS.

In general, this is a supplier responsibility but health facilities may need to report on:

- Unlisted chemicals imported directly by a health facility
- Unlisted chemicals used for research.

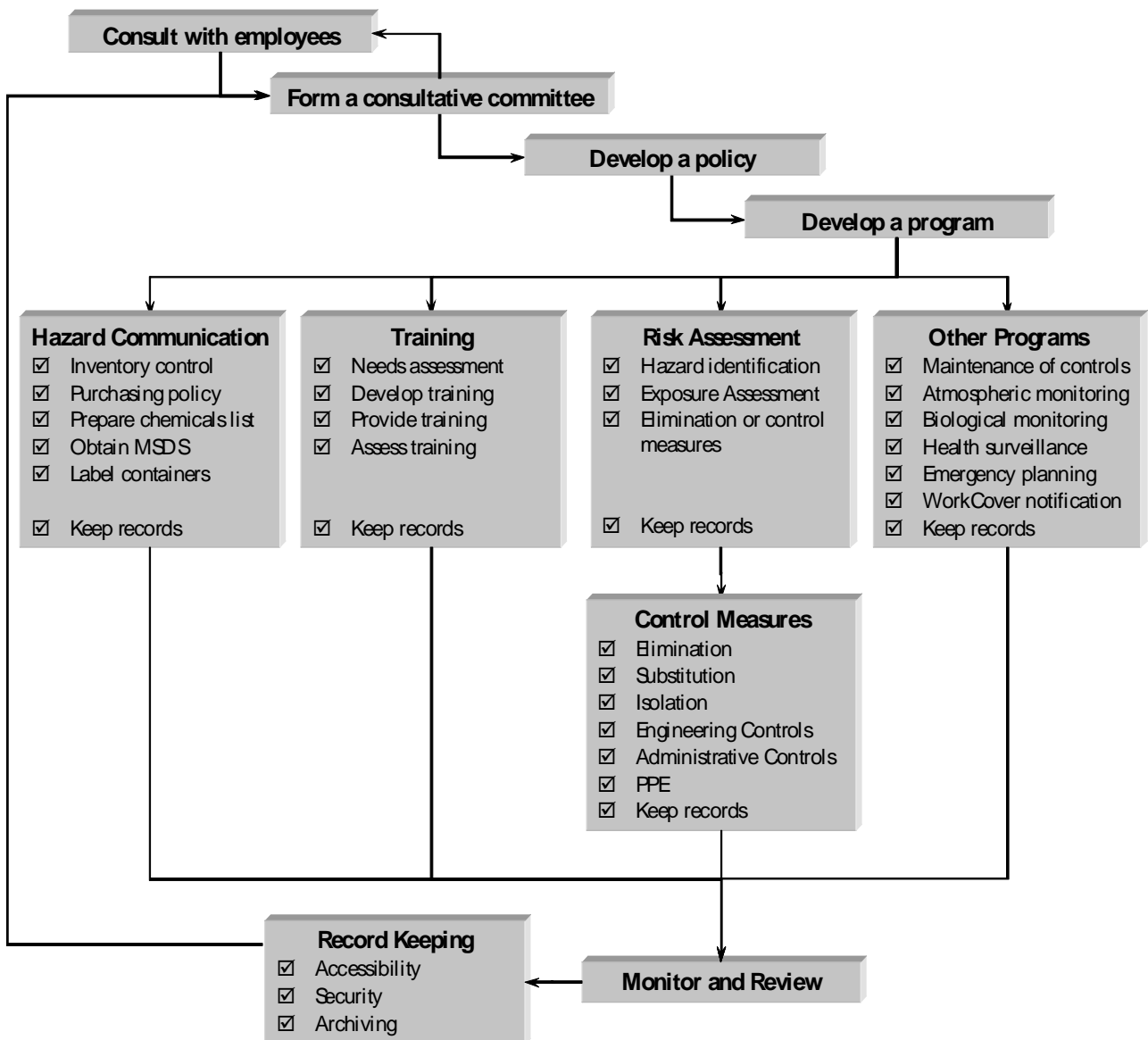
Use of unlisted substances for research is permitted, but the employer must be registered with NICNAS and must file an annual return. A NICNAS notification is required before the use of an unlisted substance can be scaled up to commercial evaluation volumes. This will require submission of a detailed application providing information about physical properties and toxicology. More information is available at <http://www.nicnas.gov.au>.

8.0 Risk Identification and Assessment

8.1 About this Section

The *Occupational Health and Safety Regulation 2001* requires employers to identify hazardous substances and dangerous goods in the workplace, conduct a suitable and sufficient assessment of the health and safety risks created by work with those substances and determine and implement control measures. This section provides guidance on how to conduct a risk assessment for hazardous substances and dangerous goods in health facilities.

Diagram 1: Hazardous Substances & Dangerous Goods Risk Management Flowchart



8.2 Hazard Identification and Risk Assessment Guidelines

8.2.1 Hazard Identification

Identification of hazards is the first step in the risk management process. The following sources of information can be used to identify hazardous substances and dangerous goods in the workplace, and the hazards associated with their use:

- *Hazardous substances* as classified by the supplier (label or MSDS) or other means
- *Dangerous goods* as classified by the supplier (label or MSDS) or other means
- Scheduled poisons as classified by the supplier, particularly (but not limited to) those in *Schedule 5*, *Schedule 6* and *Schedule 7*
- Past experience with the same or similar products
- Incident reports
- Concern expressed by staff
- Information from books, journals, leaflets and other sources.

The substances of interest may be products purchased for use such as printing inks, fugitive emissions from site activities such as wood dust from carpentry, substances manufactured on site such as therapeutic agents mixed in a pharmacy or contaminated body substances from patients.

8.2.2 Risk Assessment

Risk assessment will help determine the level of risks associated with existing and proposed workplace activities involving the use of hazardous substances and dangerous goods, and whether existing risk control measures are adequate to ensure the safety of staff, and are in accordance with legislative requirements.

Important outcomes of a risk assessment include:

- Identification of significant risks to health at the workplace, and an understanding of factors contributing to those risks
- Prioritisation of those risks for action
- Locating areas where existing risk control measures are inadequate or require change
- Recommendations for suitable control measures
- An assessment of the training needs of staff
- An assessment of first-aid measures and emergency response preparation
- An assessment of the need for atmospheric monitoring or biological monitoring
- An assessment of the need for health surveillance.

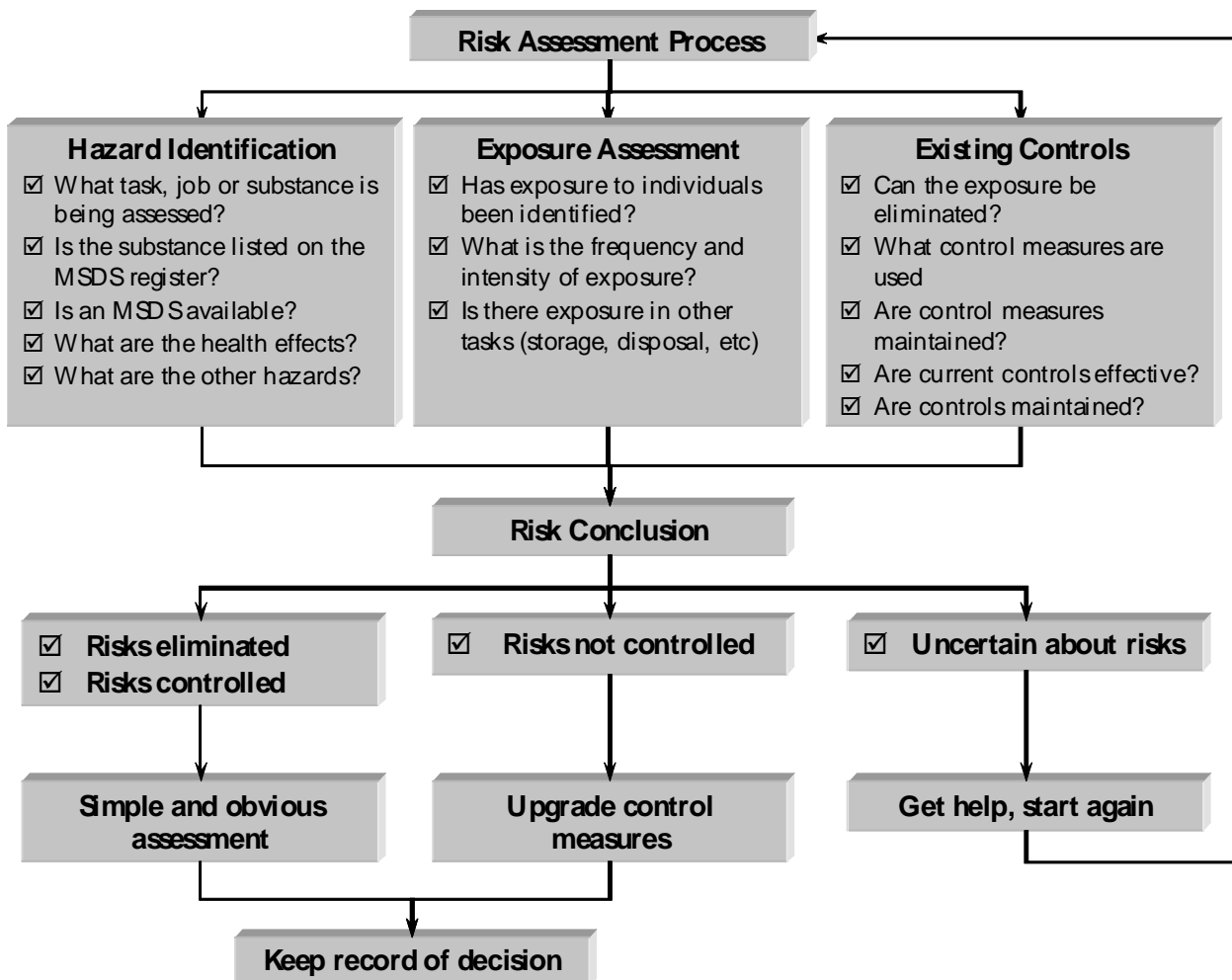
Only persons competent in the risk assessment process should perform risk assessments. Risk assessments should be done in consultation with staff.

Those conducting risk assessment should have the ability to:

- Read and interpret product labels and MSDSs
- Identify relevant sources of information and good industry practice for the use of hazardous substances
- Identify the relevant Australian Standards or other guidelines for the transport and storage of dangerous goods
- Observe work methods analytically to identify safety risks and control

- measures
- Collect and record information in a clear and systematic way
- Communicate effectively with staff, suppliers, managers, specialists and any other people involved in the use of hazardous substances and dangerous goods
- Determine when external expert assistance is needed
- Compile the information to form conclusions and a recommended list of actions
- Report the findings clearly back to all stakeholders.

Diagram 2. Hazardous Substances & Dangerous Goods Risk Assessment Flowchart



Some risk assessments are straightforward and no special control measures may be required. A notation in the site chemical register may be a sufficient record in these cases.

A more detailed record will be required for risk assessments that do require specific control measures such as the use of a laboratory chemical in a fume hood with suitable gloves.

As a guide, the identification and assessment process will involve the following steps:

- Identify hazardous substances, dangerous goods and other

substances of interest

- Identify the physical form of the substance eg solid, liquid or gas and the significant routes of exposure such as inhalation, skin contact, ingestion after inadequate personal hygiene
- Consult with the staff and contractors who use those substances
- Consult with other interested parties as appropriate eg OHS representatives, managers, regular visitors, trade unions
- Identify if there are any relevant industry codes of practice, Australian Standards or international standards
- Identify the storage areas, work locations and tasks that use those substances
- Investigate if the substance can be eliminated from use
- Ensure that the substances are listed on a chemical register with an up-to-date MSDS
- Identify achievable stages or units for the risk assessment
- Visit the work site, observe labelling and signage, watch the task/s, including all work practices, and identify the control measures currently in use
- Ensure that any PPE is being used with adequate training and that it is suitable for the substance and the task
- Recognise the use of any substances or processes regulated by the *Occupational Health and Safety Regulation 2001*
- Evaluate the risks for normal operation, emergency situations such as the reaction of incompatible substances, and waste disposal
- Identify suitable control measures that will eliminate or mitigate those risks
- If necessary, identify suitable control measures that will mitigate those risks in the short-term until longer-term control measures can be implemented
- Identify if training is required
- Identify if atmospheric monitoring, surface monitoring or biological monitoring will be of value
- Identify if health surveillance will be of value
- Identify if emergency preparation is adequate
- Identify if mandatory notification eg staff, WorkCover NSW is necessary
- Prepare a report documenting the assessment findings and recommended actions
- Identify practical way of auditing and monitoring compliance
- Review the assessment if work practices change, if there is a related workplace incident, or at least after 5 years.

It is often easier to conduct risk assessments on a task-by-task basis rather than by focusing on one substance at a time.

The *Occupational Health and Safety Regulation 2001* requires identification, assessment and control of all hazards at work - a risk assessment of plant hazards, ergonomic hazards and other hazards can be conducted at the same time if a complete task is assessed.

The Regulation also includes specific provisions relating to:

- Scheduled & prohibited carcinogenic substances (clause 158)
- Substances prohibited for particular uses (clause 164)
- Health surveillance (clauses 165-166)

-
- Asbestos (clauses 42-44, clauses 257-261)
 - Abrasive blasting (clause 180)
 - Electroplating (clauses 190-194)
 - Lead processes (clauses 199-204)
 - Use of molten metal (clauses 195-198)
 - Spray painting (clause 175)
 - Welding (clause 185).

There are some special requirements for the assessment of dangerous goods. There is a related Australian Standard for most dangerous goods classes that will deal with most of these issues, but any conditions that are unique to a site should also be assessed.

Issues may include the following:

- Incompatible goods and product stability
- Some goods need separation or segregation by distance or physical barriers
- Spills need to be contained safely within the premises
- Special control measures may be needed at transfer points
- Impact protection, security and lighting needs should be evaluated
- Food, food packaging and personal care products need to be protected from contamination
- Additional ventilation and alarms systems may be required to control asphyxiant gases, flammable vapours and any other airborne hazards
- Ignition sources may need to be eliminated or controlled inside any hazardous areas created by flammable vapours or combustible dusts
- Special fire protection measures eg steel cabinets, rooms or buildings with fire-rated walls, additional fire extinguishers may be required
- Special installation requirements for bulk containers and pipework.

8.2.3 Generic Risk Assessments

Some substances are used in the same or similar circumstances in many locations such as the use of a disinfectant in hospital wards. If the same control measures are used the risk to health will also be similar. To avoid repetition, a generic risk assessment can be conducted of representative examples of the work process.

This assessment can then apply to the other locations where the same activity occurs. Generic risk assessments only apply where the tasks and the control measures are the same. If there are differences between work locations eg quantities used, frequency of use, staff training & experience, work practices, control measures such as ventilation etc the generic risk assessment will not be applicable.

8.2.4 Monitoring of Exposure

The *Occupational Health and Safety Regulation 2001* requires monitoring of the environment for contaminants if such monitoring is recommended by an assessment report. Depending on the dominant route of exposure, some substances may require surface monitoring eg testing for residual contaminants on work benches or biological monitoring eg the testing of body substances or measures of biological effect (see 9.2.5) rather than atmospheric monitoring (collection of air samples that are representative of the air inhaled by operators) to fully assess the risk.

Examples of monitoring include collecting air samples for formaldehyde in a pathology laboratory and collection of blood samples for exposure to the toxic metal lead. In some cases it is more cost-effective to implement control measures rather than conducting any form of monitoring. In other cases regular testing will be required to prove that control measures remain effective.

A person competent in the following should conduct the environmental monitoring:

- Application of exposure standards, including the development of in-house exposure standards if required
- Use of valid sampling methods, including the necessity for biological monitoring rather than air monitoring (and vice versa) in some cases
- Skills in calibration, maintenance and use of monitoring equipment.

Contact with competent analytical laboratories, preferably ones accredited with the National Association of Testing Authorities (NATA) will also be necessary.

The allowable levels of airborne exposure required by the *Occupational Health and Safety Regulation 2001* can be found in the NOHSC document *Exposure Standards for Atmospheric Contaminants in the Occupational Environment or on the Hazardous Substances Information System* at <http://www.nohsc.gov.au>. Training in some types of monitoring is available from equipment suppliers. If external assistance is required a list of consultants can be found on the website of the Australian Institute of Occupational Hygienists (AIOH) at <http://www.aioh.org.au>.

8.2.5 Health Surveillance

Health surveillance is the monitoring of individuals for the purpose of identifying changes in health status due to occupational exposure to a hazardous substance. The *Occupational Health and Safety Regulation 2001* requires health surveillance if there is a reasonable likelihood of health effects or disease from exposure to hazardous substances and valid monitoring techniques are available. Health surveillance must only be conducted by a medical practitioner.

Biological monitoring, which is testing of body substances for the purpose of measuring exposure has been classified as health surveillance and must also be conducted under the supervision of a medical practitioner. The informed consent of a staff member must be obtained before any testing is conducted. The results must be given to the staff member concerned, but cannot be given to the any other party (including the employer) unless authorised by that person. However, the employer must be advised of the general outcome of surveillance and any necessary preventive or remedial action. Biological monitoring results for general issue should only identify job categories and/or tasks, they should not identify the names of individual staff, and all relevant NSW privacy legislation and NSW Health privacy guidelines should be met.

WorkCover NSW no longer accredits doctors for this purpose, but a list of practising occupational physicians can be found at the Australasian

Faculty of Occupational Medicine (AFOM) (<http://www.racp.edu.au/afom>).

8.2.6 Setting Priorities for Control Measures

Some control measures can be implemented at little cost such as purchase of a plunger can reduce the risk of fire when using flammable liquids. Other control measures can involve a substantial cost such as installation of a scrubbing system for anaesthetic gases. Immediate action should be taken to control high-risk activities or control measures that can be implemented at low-cost. For other hazards, risk ranking systems can be used in consultation with staff to set priorities if there are competing demands for expenditure.

If in-house tools have not been developed there are currently a number of risk ranking resources available, including: *AS/NZS 4360 Risk Management* and *WorkCover NSW Hazpak*.

8.2.7 Record Keeping

A notation in the site chemical register is a sufficient record if no specific measures are necessary to control the risks associated with exposure. Suggested tools that can be used to document other risk assessments and training can be found in Section 12.

The *Occupational Health and Safety Regulation 2001* requires records to be kept for specified time periods:

- Risk assessment reports requiring atmospheric monitoring (30 years)
- Risk assessment reports requiring health surveillance (30 years)
- Other risk assessment reports (5 years)
- Dangerous goods serious incident investigation (5 years)
- Atmospheric monitoring records (30 years)
- Health surveillance records (30 years)
- Training records (clause 13)(5 years)
- Exposure to carcinogenic substances (clause 169)(30 years)
- Carcinogenic substances and lead-risk work notifications (Part 12.3)(30 years)
- Lead-risk work removal records (clause 203)(5 years).

Clause 31 of the *Radiation Control Regulation 2003* requires government consent before the disposal or destruction of some radiation safety records, including personal exposure records.

8.2.8 Review of Risk Assessment Reports

Review of risk controls should be an ongoing process that is subject to continual improvement. At minimum, risk assessments should be reviewed every five years. Review will be required at an earlier time if new information becomes available or if there are significant changes in the work, or if there is a related workplace OHS incident.

9.0 Risk Control

9.1 About this Section This section provides guidance to assist health facilities identify and implement appropriate local measures to eliminate risks associated with the use of hazardous substances and dangerous goods as far as practicable, and to control any remaining risks consistent with the hierarchy of risk controls.

9.2 Risk Control Guidelines The *Occupational Health and Safety Regulation 2001* requires the control of risks to health and safety at work. Control measures are practical steps undertaken at the workplace to eliminate or minimise risks to health. Review of risk controls should be an ongoing process, to ensure a cycle of continuous improvement.

9.2.1 Hierarchy of Controls

The hierarchy of controls classifies and ranks control measures. The most preferred form of control is at the top of the list, and the least preferred form of control is at the bottom of the list. The *Occupational Health and Safety Regulation 2001* requires all hazards to be eliminated unless this course of action is not reasonably practicable. In other cases, a combination of control measures will be selected from various levels of the hierarchy. For instance an automated processor with mechanical ventilation and PPE (nitrile gloves) can be used to control risks related to the use of glutaraldehyde as a disinfectant.

The hierarchy of controls for hazardous substances and dangerous goods is:

- Elimination (hazard removed)
- Substitution (hazard removed or decreased eg replaced with something less hazardous)
- Isolation (hazard remains but is separated from staff)
- Engineering controls (hazard remains but is controlled by use of equipment)
- Administrative controls (hazard remains but is controlled by careful work methods)
- Personal protective equipment (hazard remains but staff exposure is prevented or reduced).

Examples of elimination include:

- Disposal of redundant chemicals
- Discontinuing a process
- Contracting a process to another organisation with better control measures
- External storage of dangerous goods.

Examples of substitution include:

- Use of a safer products such as a detergent instead of an alkaline cleaner
- Use of less concentrated of smaller volumes of a substance
- Use of a safer process such as an automated disinfection machine rather than manual processing
- Use of wet methods such as wet grinding instead of dry grinding.

Examples of isolation include:

- Use of a bund to contain any spilled chemicals
- Work outside normal hours, with suitable precautions, to limit the number of people exposed
- Installation of temporary barriers to prevent exposure to dust
- Construction with fire-rated walls and doors to prevent the spread of flames from a dangerous goods store
- Storage in steel cabinets to prevent the impact of flames on a dangerous goods store.

Examples of engineering controls include:

- Use of mechanical ventilation to dilute contaminants
- Use of local exhaust ventilation to remove contaminants eg a booth to enclose and ventilate disinfection with glutaraldehyde.

Examples of administrative controls include:

- Adequate supervision
- Rostering that limits the exposure time of staff
- Inventory control such as keeping enough for daily use in the work area
- A regular maintenance program for control measures
- Induction and ongoing training
- Access restrictions during particular processes
- Developing Standard Operating Procedures (SOP) or Safe Work Practices (SWP) eg using small containers and returning the lids after use.

Examples of PPE include:

- Use of waterproof boots to protect the feet
- Use of clothing to protect the body
- Use of gloves to protect the skin
- Use of a face shield to protect the face
- Use of protective goggles or a face shield to protect the eyes
- Use of respirators to protect the lungs
- Use of gowns and aprons to protect clothing.

The PPE utilised by staff must be appropriate for the hazardous substance or dangerous good being used.

9.2.2 Supervision

The *Occupational Health and Safety Regulation 2001* requires employers to provide reasonable supervision by a competent person. Supervisors should ensure that chemicals are used safely as a part of normal work practices. New control measures should be observed to ensure that they have been correctly implemented. Managers and OHS committees should monitor the implementation of improvement programs.

9.2.3 Maintenance of Control Measures

Maintenance is necessary to ensure that control measures continue to be effective. The *Occupational Health and Safety Regulation 2001* requires employers to ensure that all engineering controls and personal protective equipment are properly maintained. A regular service schedule should be

prepared for engineering controls and personal protective equipment.

A maintenance program can include (but is not limited to):

- Cleaning or replacement of filters for local-exhaust ventilation systems
- Use of air flow indicators on ventilation systems
- Cleaning, inspection, maintenance and replacement of protective clothing, gloves, eye protectors and respirators
- Renewing pipe identification colours, safety signs and labels if damaged, obscured or faded
- Weekly testing of safety showers and eye baths
- Ensuring that doors to dangerous goods cabinets close properly
- Regular inspection of fire-fighting equipment
- Regular checking of contents of first aid and spill kits.

9.2.4 Personal Protective Equipment (PPE)

In some cases, the use of PPE is the only practicable control measure, such as protection of the hands during a short-term maintenance task. In other cases, it will be used in combination with other control measures. However, PPE is listed last on the hierarchy of controls because it has no direct effect on the hazard, can interfere with efficient work and is often uncomfortable. It is often incorrectly selected or incorrectly used, leading to low levels of protection and a false sense of security. Purchase of PPE is also expensive; health facilities should estimate the recurring cost of consumables, maintenance and training before choosing PPE in favour of the capital cost of engineering controls.

Factors that must be considered if PPE is to be used as a control measure include:

- PPE should be designed in accordance with Australian or European Standards
- PPE should be manufactured under a quality system such as the Standards Australia *StandardsMark*
- PPE should be selected in accordance with the relevant Australian or European Standard eg surgical masks and half-face respirators with a P1 rating do not provide protection from organic vapours
- PPE should be used in accordance with the relevant Australian or European Standard, including staff training, cleaning, maintenance
- PPE should be personally fitted to each staff member, who must be trained in its correct use
- PPE should be worn for the duration of exposure by the staff member
- PPE must be maintained, cleaned and stored correctly
- Consumable items eg cartridge filters in respirators must be replaced regularly.

Some of the common pitfalls associated with the use of PPE include:

- Permeation of toxic substances through gloves because of incorrect selection of glove material
- Selected gloves being the wrong size, too short or not providing enough dexterity for the job
- Use of surgical masks leading to insufficient (or zero) respiratory protection from dusts and/or vapours
- Ineffective respiratory protection because of incorrect filter selection, there is no single respirator filter that can protect against all

contaminants

- Ineffective respiratory protection because of an inadequate seal to the face ie respirators must be correctly fitted before use
- Spread of infection because of inadequate cleaning of respiratory protection or other PPE
- Risk of heat stress when using protective clothing in hot and/or humid environments
- Surgical masks are not designed to protect the person wearing the mask
- Some people can develop an allergic reaction to the materials used to manufacture protective equipment eg latex in gloves, respirators.

9.3 Emergency Procedure Guidelines

The emergency plans for health facilities should take account of the use of hazardous substances and dangerous goods. A written emergency plan that has been developed in consultation with the fire brigade is required if the dangerous goods kept on site exceeds the manifest quantity.

Risk assessments should determine the need for any special emergency procedures, which might include:

- Ability to shut down plant, equipment and ventilation systems
- Need for and location of first-aid facilities
- Need for and location of fire-fighting equipment
- Need for and location of dangerous goods placards, radiation signs and other signs
- Need for and location of the dangerous goods manifest
- Bunded areas for the large-scale storage of liquids
- Spill trays and drip trays for the small-scale storage of liquids
- Installation of safety showers and/or emergency eye wash stations
- Spill kits with sorbent materials, barriers for drains, PPE in high-risk areas
- Staff training in emergency procedures
- Site-specific, written spill-control procedures.

9.3.1 First-Aid Facilities

Normal first-aid facilities should be in accordance with the *Occupational Health and Safety Regulation 2001* and NSW Health policy in relation to the provision of first aid facilities and personnel. A risk assessment for hazardous substances and dangerous goods should determine if special first-aid facilities such as a safety shower and eye bath are required.

9.3.2 Fire Fighting Facilities

Normal fire fighting facilities should be in accordance with the building approval for the site and/or the *Building Code of Australia*. A risk assessment for hazardous substances and dangerous goods should determine if special fire fighting measures such as additional fire extinguishers near a package store with flammable liquids will be required.

10.0 Program Evaluation

10.1 About this Section This section provides guidance to assist employers evaluate and review hazardous substances and dangerous goods management programs in their workplace, to ensure ongoing effectiveness.

10.2 Program Evaluation Guidelines Review and evaluation of management programs for hazardous substances and dangerous goods should be an integral part of the program itself. The program should also be designed with a view to continual improvement.

The overall process for an effective program includes the following steps:

- Identify performance indicators
- Undertake baseline measurements prior to the program
- Plan and implement the program
- Monitor program risk controls
- Measure the performance indicators over time
- Review the program and identify opportunities for continuous improvement.

Performance indicators for hazardous substances and dangerous goods management program may include:

- Number and quantity of hazardous substances and/or dangerous goods eliminated from a site
- Reduction in the use of hazardous substances and/or dangerous goods
- Reduction in the number of complaints, reported hazards, incidents and/or lost-time injuries relating to the use of hazardous substances and/or dangerous goods
- Increase in the number of audit findings that have been implemented
- Reduction in the number of adverse audit findings
- Improvements in atmospheric monitoring, biological monitoring and/or health surveillance results
- Number of risk assessments conducted, control measures implemented and/or staff trained
- Satisfactory completion of audits and/or maintenance checks
- Reduced wastage and other cost reductions.

Risk assessments for hazardous substances should be reviewed at least every five years and this may be a suitable time period for formal review of the entire management program. A review can be conducted more often if required to align with other program such as EQulP accreditation.

11.0 Chemical Safety Program Tools

11.1 Sample Labels

11.2 Sample Supplier MSDS Request

11.3 Sample Chemical Register Index

11.4 Sample Training Record

11.5 Sample Risk Assessment Notes Form

11.6 Sample Risk Assessment (1)

11.7 Sample Risk Assessment (2)

11.8 Sample Audit & Maintenance Checklist

11.9 Hazardous Substances and Dangerous Goods Risk Assessment Checklist

11.10 Sample Dangerous Goods Manifest

11.11 Sample Dangerous Goods Site Plan

11.12 Related Documents

11.1 Sample Labels


Sample label for "non-hazardous" substances

Contents: 50% Detergent in Water Department: Domestic Services

Sample label for a hazardous substance

Product Name: Jones & Company Hospital Disinfectant	
Risk Phrases	Safety Phrases
R36/38 Irritating to the eyes and skin	S24/25 Avoid contact with skin and eyes S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice S37 Wear impervious gloves

Sample label for a hazardous substance that is also dangerous goods

Product Name: Hydrochloric Acid (Muriatic Acid)	
UN Number 1789, Packaging Group II	
Risk Phrases	Safety Phrases
R23 Toxic by inhalation R35 Causes severe burns	S9 Keep container in a well-ventilated place S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice S36/37 Wear suitable protective clothing & gloves S39 Wear suitable face protection S45 In case of accident or if you fell unwell, seek medical advice immediately (show the label whenever possible)
	

11.3 Sample Chemical Register Index

SECTION 1 - SITE DETAILS	
Site: Hometown District Hospital	Address: 10 Hospital Road HOMETOWN NSW 2999
Revision Date: 31 January 2005	

SECTION 2 - SAMPLE CHEMICAL REGISTER				
<p>All <i>hazardous substances</i> and <i>dangerous goods</i> on site must be listed The MSDS for each product is required in the chemical register A MSDS for other substances and other products is also recommended The notation <i>Not applicable</i> has been made if a risk assessment is not mandatory The notation <i>Report not required</i> has been made if no special control measures are needed The notation <i>Report required</i> has been made if the Regulation requires a risk assessment to be conducted</p>				
Substance	Location	Hazardous Substance	Dangerous Goods	Risk Assessment
correction fluid	Office	Yes	Class 6.1, PG II	Report not required
oven cleaner	Kitchens	Yes	Class 8, PG II	Report required
10% formalin	Theatres	Yes	No (<25% formaldehyde)	Report required
10% formalin	Pathology	Yes	No (<25% formaldehyde)	Report required
welding rods	Maintenance	Fume only	No	Report required
sodium chloride	Plant Room	No	No	Not applicable
hand cleaner	Toilets	No	No	Not applicable
2% glutaraldehyde	Day Surgery	Yes	No	Report required
topical antibiotic	Pharmacy	Yes	No	Report not required
topical antibiotic	Ward	Yes	No	Report required
nitrogen	Cylinder Store	No	Class 2.2	Report required
oxygen	Cylinder Store	No	Class 2.2/5.1	Report required

11.4 Sample Training Record

SECTION 1 - TRAINER, PROCESS & SUBSTANCES	
Date: 31 January 2005	Employer: Hometown District Hospital
Trainer's Name: John Smith, Domestic Services	Trainer's Organisation: Hometown District Hospital
Process: Toolbox training session for oven cleaning in kitchen	
Substance/s: Oven Cleaner	

SECTION 2 - TOOLBOX TRAINING OUTLINE			
Labelling - How & Why?	<input checked="" type="checkbox"/>	Consultation Arrangements	<input checked="" type="checkbox"/>
Labelling - Label information	<input checked="" type="checkbox"/>	Control measures, work practices, storage	<input checked="" type="checkbox"/>
MSDS information	<input checked="" type="checkbox"/>	Use & fitting of personal protective equipment	<input checked="" type="checkbox"/>
Accessing MSDS documents	<input checked="" type="checkbox"/>	Emergency procedures & decontamination	<input checked="" type="checkbox"/>
Chemical hazards & routes of entry	<input checked="" type="checkbox"/>	First aid & incident reporting	<input checked="" type="checkbox"/>
Exposure monitoring & exposure levels	<input checked="" type="checkbox"/>	Supplier's duties	<input checked="" type="checkbox"/>
Health surveillance (reasons, rights & obligations)	<input checked="" type="checkbox"/>	Employer's duties	<input checked="" type="checkbox"/>
Risk assessment process	<input checked="" type="checkbox"/>	Staff member's duties	<input checked="" type="checkbox"/>

SECTION 3 - ATTENDANCE RECORD	
Name: David Black	Signature: <i>David Black</i>
Name:	Signature:
Name:	Signature:
Name:	Signature:
Name:	Signature:
Name:	Signature:
Name:	Signature:

11.6 Sample Risk Assessment (1)

SECTION 1 - LOCATION, SUBSTANCE & TASK

Site: Hometown District Hospital

Substance/s: Oven Cleaner

MSDS: Available in kitchen

Task & Location/s: Oven cleaning in kitchen

Incident Reports: Caustic burns to the skin

SECTION 2 - HAZARD INFORMATION

The product is a caustic cleaner that can cause serious eye burns and serious skin burns.

SECTION 3 - CURRENT HAZARD CONTROLS

The container is labelled by the supplier

Staff are aware of the location of the chemical register

PVC or rubber gloves are used and are thoroughly washed afterwards

A faceshield is used when applying the product

The product is returned to the corrosives storage area immediately after use

SECTION 4 - ASSESSMENT RECOMMENDATIONS

Cleaning staff should be trained in the hazards of caustic oven cleaner

The oven should be warm to touch but not hot when applying the product

A warning sign is required if the caustic cleaner is left in an unattended oven

A written procedure should be prepared & staff trained accordingly

The oven, floor and sink should be rinsed after cleaning to remove traces of caustic

A safety shower and eyewash should be installed in the kitchen

A spill kit suitable for use with caustics should be installed near the work area

Review this risk assessment in consultation with staff when control measures have been updated

SECTION 5 - ASSESSMENT DETAILS

Assessment findings: Risks not controlled

Assessor: John Smith, Domestic Services

Organisation: Hometown District Hospital

Signature: *John Smith*

Date: 31 January 2005

Staff consulted: David Black

Authorised by John Smith

Title: Domestic Services Co-ordinator

Signature: *John Smith*

Date: 31 January 2005

11.7 Sample Risk Assessment (2)

Name of Assessor	<input checked="" type="checkbox"/> <i>Jane White</i>
<input type="checkbox"/> Staff consulted Name staff who provided input to assessment	<input checked="" type="checkbox"/> <i>Mary Brown, Jason Grey</i>
<input type="checkbox"/> What is being assessed? Describe the task, job or substance	<input checked="" type="checkbox"/> <i>Tissue collection from operating theatre into 50 ml specimen containers containing formalin (10% formaldehyde in water)</i>

Hazard Identification

<input type="checkbox"/> Is the substance listed in the chemical register?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If no, add the chemical to the list
<input type="checkbox"/> Do you have the MSDS for the substance?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If no, a MSDS must be obtained
<input type="checkbox"/> What are the health effects? List the "worst case" and possible health problems from the exposure without the controls	<input checked="" type="checkbox"/> <i>Formalin is an irritant, sensitiser and carcinogen, affecting the lungs and skin.</i>
<input type="checkbox"/> What are the other hazards of the chemical? List the hazards? (such as flammable, reactive)	<input checked="" type="checkbox"/> <i>Formalin is incompatible with strong oxidisers, but a 10% solution is not flammable</i>

Exposure Assessment

<input type="checkbox"/> Has exposure to individuals been identified? Identify the likely exposure(s)	<input checked="" type="checkbox"/> <i>To theatre staff during task during collection of tissue samples.</i>
<input type="checkbox"/> What is the frequency and intensity of exposure? Describe the likely exposure conditions	<input checked="" type="checkbox"/> <i>Short term, low level exposure occurs on a frequent basis (2 mins, 5-10 times a day).</i>
<input type="checkbox"/> Is there possible exposure in other activities (storage, disposal, etc)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, assess those activities separately. <input checked="" type="checkbox"/> <i>Stores.</i> <input checked="" type="checkbox"/> <i>Pathology Laboratory.</i>

Existing Controls

<input type="checkbox"/> Can the exposure be eliminated? Is elimination practicable	<input checked="" type="checkbox"/> <i>Formaldehyde most suitable chemical for this task.</i>
<input type="checkbox"/> What control measures are currently used? List all current control measures	<input checked="" type="checkbox"/> <i>Task carried out in ventilated theatres. Disposable latex gloves and eye protection suitable for splash protection.</i>
<input type="checkbox"/> Are current controls effective?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If No, identify other control measures considering the hierarchy of controls
<input type="checkbox"/> How are these control measures maintained? Maintenance of controls needs to be noted (for example, ventilation tests, respirator maintenance)	<input checked="" type="checkbox"/> <i>Ventilation system maintained on a regular basis by contractors.</i>

Risk Conclusion – Can it be concluded that the

<input type="checkbox"/> 1 Risk eliminated OR	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If Yes, such a conclusion is a simple and obvious assessment
<input type="checkbox"/> 2 Risk controlled	Yes <input type="checkbox"/> No <input type="checkbox"/> If Yes, such a conclusion requires control of exposure
<input type="checkbox"/> 3 Risk not controlled	Yes <input type="checkbox"/> No <input type="checkbox"/> If Yes, seek additional assistance; exit process, re-start risk assessment process again
<input type="checkbox"/> 4 Uncertain about risks	Yes <input type="checkbox"/> No <input type="checkbox"/> If Yes, seek additional assistance; exit process, re-start risk assessment process again

Approval (if required)

<input type="checkbox"/> Person approving risk conclusion (if required)	Signature: <i>Jane White</i> Name: Ms Jane White Title: NUM, Theatres Date: 31 January 2005
<input type="checkbox"/> Review date Risk assessments should be reviewed every five years	Date: 31 January 2010

11.8 Sample Audit & Maintenance Checklist

SECTION 1 - LOCATION, SUBSTANCE & TASK

Site: Hometown District Hospital

Substance/s: Oven Cleaner

Task & Location/s: Oven cleaning in kitchen

SECTION 2 - AUDIT & MAINTENANCE CHECKLIST

- | | |
|--|--------------------------|
| All container labels are in good condition | <input type="checkbox"/> |
| Material safety data sheet (MSDS) filed in local register | <input type="checkbox"/> |
| Material safety data sheet (MSDS) less than 5 years old | <input type="checkbox"/> |
| New staff are aware of the location of the chemical register | <input type="checkbox"/> |
| New staff trained in job hazards | <input type="checkbox"/> |
| Rubber gloves not perishing or damaged | <input type="checkbox"/> |
| Replacement stocks of rubber gloves available for issue | <input type="checkbox"/> |
| Faceshield is used when applying the product | <input type="checkbox"/> |
| Replacement faceshield or spare parts available for issue | <input type="checkbox"/> |
| Weekly checks of safety shower conducted and recorded | <input type="checkbox"/> |
| Weekly checks of eyebath conducted and recorded | <input type="checkbox"/> |
| Corrosive sign on cabinet and legible | <input type="checkbox"/> |
| Doors of corrosive cabinet close and no rust on cabinet | <input type="checkbox"/> |
| No acids stored with alkalis | <input type="checkbox"/> |
| No other incompatible chemicals stored together | <input type="checkbox"/> |
| Product returned to corrosives cabinet after use | <input type="checkbox"/> |

SECTION 3 – RECOMMENDATIONS

Repair door to corrosive cabinet to ensure that it closes automatically

SECTION 4 - INSPECTOR DETAILS

Assessor: John Smith, Domestic Services Supervisor

Organisation: Hometown District Hospital

Signature: *John Smith*

Date: 31 January 2005

11.9 Hazardous Substances and Dangerous Goods Risk Assessment Checklist

Preliminary

- √ Identify all hazardous substances and dangerous goods.
- √ Determine if personal use (food, pharmaceutical, cosmetics) exclusion is applicable.
- √ Conduct a needs analysis to see if a risk assessment is required.
- √ Decide if other hazards (plant, ergonomics, others) are to be assessed at the same time.
- √ Decide if the assessment is for a substance, a task or an entire process.
- √ Determine any WorkCover notification or approval requirements.

Management

- √ Is there a co-ordinator for hazardous substances and dangerous goods activities?
- √ Does the co-ordinator have sufficient competencies and skills?
- √ Is external assistance required?
- √ How are priorities for expenditure established?

Schedule of Materials

- √ Prepare a list of materials.
- √ Is one substance used or are there more?
- √ Identify any raw materials, intermediate products and finished products.
- √ Identify any residues, by-products and wastes.
- √ Identify any ancillary materials (such as cleaning agents).
- √ Identify any fugitive emissions (such as welding fume).
- √ Identify any hazardous combustion products.

Exposure Routes

- √ Is there a risk of eye contact or ingestion (splash to mouth)?
- √ What are the effects of skin contact?
- √ Is there a risk of absorption through the intact skin?
- √ Is there a risk of inhalation exposure?
- √ Is there a risk of inoculation?

Plant and Equipment

- √ Identify and describe any processing equipment.
- √ Identify and describe any control measures.

Work Methods

- √ Describe the process step-by-step.
- √ Identify any maintenance activities.

Hazards

- √ Identify all hazardous substances, dangerous goods and other substances.
- √ Identify any short-term and long-term health and/or safety (fire, explosion etc) effects.
- √ Identify any past incidents or health effects.
- √ Identify any incompatible materials.
- √ Do the toxic effects change if the substances are mixed?
- √ Do hot or cold conditions increase or decrease any hazards?

Reference Materials

- √ Are copies of legislation available?
- √ Are copies of codes of practice available?
- √ Are copies of Australian Standards available?
- √ Are any other publications required?

Identification of Piping, Conduits and Ducts

- √ Do pipes, conduits and ducts require identification colours?
- √ Do pipes, conduits and ducts require contents labels?
- √ Do pipes, conduits and ducts require hazardous-service stripes (black & yellow)?

11.9 Hazardous Substances and Dangerous Goods Risk Assessment Checklist (cont)

Identification of Enclosed Systems

- √ Are placards required for dangerous goods in bulk tanks?
- √ Are placards required for dangerous goods in process vessels?
- √ Is a hazard label required for smaller vessels?
- √ Is identification recommended for other enclosed systems?

Supplier's Duties

- √ Is the employer also a supplier?
- √ Has the supplier correctly classified dangerous goods and hazardous substances?
- √ Are dangerous goods kept in approved containers?
- √ Are dangerous goods and hazardous substances labelled correctly?
- √ Has a material safety data sheet (MSDS) been supplied?
- √ Does the MSDS provide quality information?
- √ Is the MSDS in National Occupational Health & Safety Commission (NOHSC) format?
- √ Is the MSDS less than 5 years old?

Hazard Labels

- √ Are there any unlabelled containers in the workplace?
- √ Do labels for hazardous substances have risk phrases and safety phrases?
- √ Do labels for dangerous goods have UN number and a class diamond?
- √ Are the labels in English, secure and legible?
- √ Are labels obscured after cleaning and/or purging of empty containers?

Chemical Register

- √ Is a central chemical register required?
- √ Is a local chemical register required to ensure that MSDS are readily available to staff?
- √ Have MSDS been obtained for all hazardous substances and dangerous goods?
- √ Have MSDS been obtained for other substances?
- √ Are dangerous goods and hazardous substances identified?
- √ Are there any risk assessment notations?

Purchasing

- √ Does the site have purchasing procedures for hazardous substances and dangerous goods?
- √ Are purchasing staff trained in the purchasing procedures?
- √ Is there a system for obtaining MSDS prior to purchase?

Consultation

- √ Does the site have an OHS committee or other arrangements?
- √ Is a specialist group required for effective consultation?
- √ How will this risk assessment be made available to staff?

Training

- √ Conduct a training needs analysis if required.
- √ Is the training curriculum adequate?
- √ Is there induction training for new staff and contractors?
- √ Have all staff and contractors received sufficient ongoing training?
- √ Have records of training been kept?

External Transport

- √ Are dangerous goods or wastes shipped by the employer?
- √ Is a license required (bulk tanker drivers, waste contractors)?
- √ Have transport contractors been audited for compliance?
- √ Are specialised dangerous goods transport consultants required?

11.9 Hazardous Substances and Dangerous Goods Risk Assessment Checklist (cont)

Internal Transport

- √ Are internal transport procedures adequate?
- √ Are carriers used when transporting glass containers?
- √ Are explosion-protected forklift trucks required near flammable liquids?

Storage

- √ Is the placarding and/or signposting of storage areas sufficient?
- √ Are incompatible materials and/or foodstuffs separated and/or segregated?
- √ Are flammable substances kept away from ignition sources?
- √ Are fire-rated walls, ceilings and/or floors required?
- √ Are separation distances sufficient?
- √ Is bunding of tanks and/or package stores required?
- √ Is temperature control required?
- √ Is WorkCover NSW notification required?

Risk Assessment

- √ Is atmospheric monitoring for contaminants required?
- √ Is surface monitoring for contaminants required?
- √ Is biological monitoring required?
- √ Is health surveillance required?
- √ Is a report with numerical risk estimates required?

Hazardous Gas Atmospheres

- √ Identify fire and explosion risks from hazardous gas atmospheres.
- √ Is control of static electricity required?
- √ Has explosion-protected electrical equipment been used?
- √ Are approval details visible on the equipment?
- √ Does the ventilation and other equipment comply with Australian Standards?

Combustible Dusts

- √ Identify risks from combustible dusts.
- √ Are areas classified in accordance with Australian Standards?
- √ Is control of static electricity required?
- √ Is explosion-protected electrical equipment required?
- √ Are approval details visible on the equipment?

Confined Space Hazards

- √ Identify any work in confined spaces.
- √ Conduct a confined spaces assessment if required.
- √ Can the work be conducted without need for entry?
- √ Evaluate the permit system, atmospheric monitoring procedures and emergency equipment?

Hierarchy of Controls

- √ Identification of control measures should be the focus of a risk assessment.
- √ Identify if elimination is practicable first.
- √ Identify long-term control measures.
- √ Identify if short-term control measures are required.
- √ Measure ventilation rates & compare with design standards.
- √ Check selection and use of personal protective equipment.

Environmental Issues

- √ Evaluate waste minimisation, recycling and waste disposal.
- √ Evaluate bunding and spill-control procedures.
- √ Are there any underground tanks on site?
- √ Are any environment licences required (premises, activities, waste)?

11.9 Hazardous Substances and Dangerous Goods Risk Assessment Checklist (cont)

Maintenance and Regular Service

- √ Is preventative maintenance conducted on a routine basis?
- √ Is the flow rate of ventilation systems tested?
- √ Are air filters replaced when required?
- √ Is earthing and bonding for static electricity maintained?
- √ Do any labels, signs or placards need changing?
- √ Is protective equipment inspected, cleaned and maintained?
- √ Is fugitive emission testing required for pipelines?

Compliance Audits

- √ Are routine safety checks conducted by staff as part of work procedures?
- √ Are indicator gauges installed on ventilation systems?
- √ Are regular audits conducted?

Atmospheric Monitoring

- √ Would atmospheric monitoring be useful?
- √ Are valid sampling methods, calibrated equipment & a suitable laboratory available?
- √ Are past atmospheric monitoring results available?
- √ Was the correct methodology used for any previous atmospheric monitoring?

Biological Monitoring

- √ Is there a risk of skin absorption?
- √ Is there the possibility of exposure due to personal hygiene (such as lead)?
- √ Are valid sampling methods and a suitable laboratory available?
- √ Was the correct methodology used for any previous biological monitoring?

Health Surveillance

- √ Would health surveillance be useful?
- √ Is the substance listed in clause 165 of the *Occupational Health and Safety Regulation 2001*?
- √ Are there valid assessment methods and an experienced medical practitioner available?

Accident and Emergency Preparation

- √ Does the site require dangerous goods placards?
- √ Is a site dangerous goods manifest required? If so, is it up to date and placed correctly?
- √ Does the site have adequate fire protection equipment?
- √ Does the site have spill-control equipment and procedures?
- √ Does the site have an adequate emergency plan?
- √ Does preparation of the emergency plan require consultation with the fire brigade?
- √ Does the site have adequate first-aid facilities (including safety showers and eye baths)?
- √ Does the site have an accident and incident reporting system?

Program Evaluation

- √ Have performance indicators been identified?
- √ Are indicators improving or worsening?

Review

- √ Review risk assessment after significant change.
- √ Review risk assessment after 5 years.
- √ Review the effectiveness of controls.
- √ Is elimination of the risk now feasible?

11.10 Sample Dangerous Goods Manifest

SECTION 1 - SITE DETAILS

Site: Hometown District Hospital

Address: 10 Hospital Road, HOMETOWN NSW 2999

Manifest Date: 31 January 2005

SECTION 2 - EMERGENCY CONTACT INFORMATION

Name: All Hours Security Service

Telephone: 1800 012 345

Name: Mr Bob Brown, Hospital Engineer

Telephone: 02 012 3456

SECTION 3 - Bulk Tanks

Location	Name	Class	Packaging Group	Type	Capacity
DG1	Petroleum Gases, Liquefied	2.1	NA	Above ground	10 000 L
DG2	Oxygen Refrigerated Liquid	2.2/5.1	NA	Above ground	5000 L
DG3	Combustible liquid	C1	NA	Underground	100 000 L

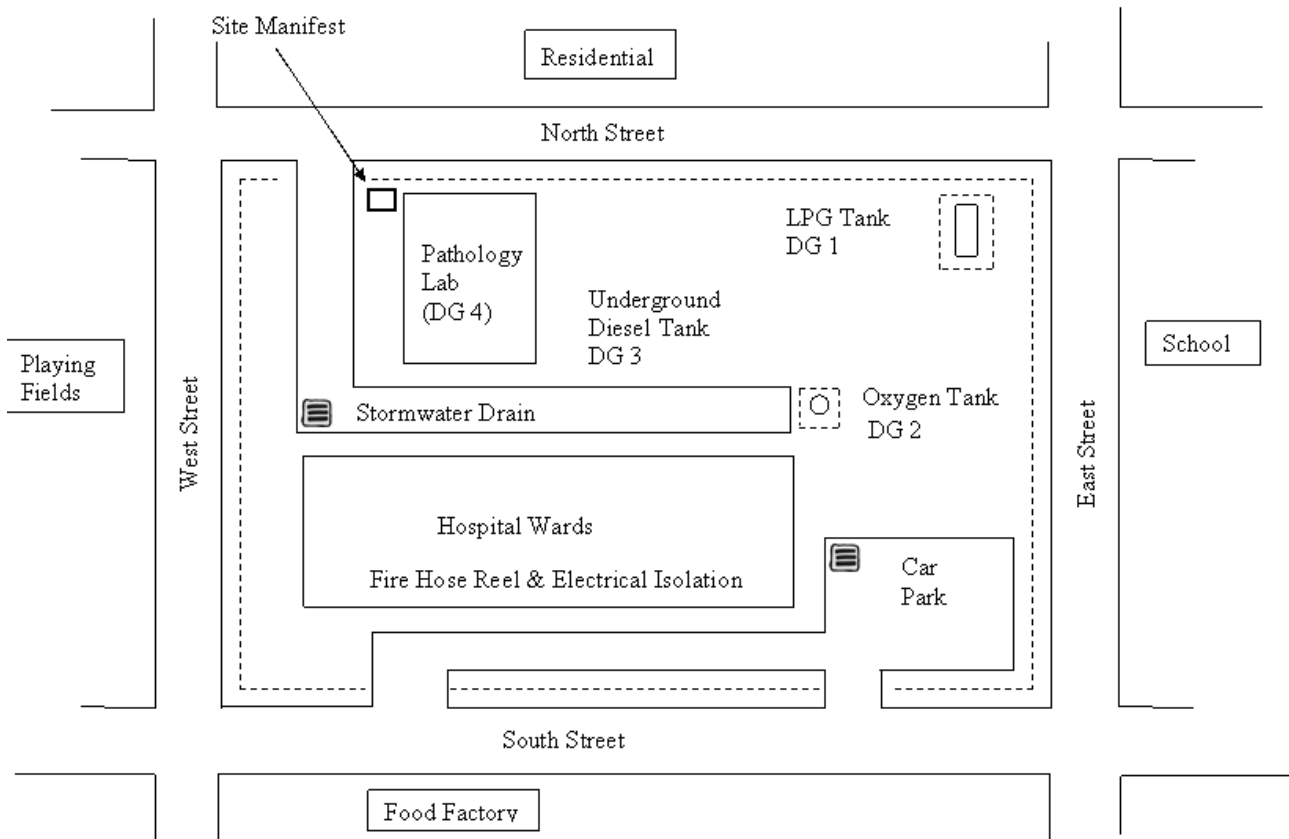
SECTION 4 - Packaging Group I and Class 2.3

Location	Name	Class	Maximum
NA	NA	NA	None Kept

SECTION 4 - Other Dangerous Goods

Location	Class	Packaging Group	Maximum
DG4 (Pathology)	3	II	250 L
DG4 (Pathology)	3	III	600 L

11.11 Sample Dangerous Goods Site Plan



11.12 Related Documents

Related Internet Sites

Australasian Institute of Dangerous Goods Consultants
<http://www.aidgc.com.au>

Australian Institute of Occupational Hygienists
<http://www.aioh.org.au>

Australian Faculty of Occupational Medicine
<http://www.racp.edu.au/afom>

National Industrial Chemical Notification and Assessment Scheme (NICNAS)
<http://www.nicnas.gov.au>

National Occupational Health & Safety Commission (NOHSC)
<http://www.nohsc.gov.au>
<http://www.nohsc.gov.au/applications/hsis/> (Hazardous Substances Information System)

Radiation Control - Department of Environment and Conservation (DEC)
<http://www.epa.nsw.gov.au/radiation/index.htm>

WorkCover NSW
<http://www.workcover.nsw.gov.au>

For all NSW legislation
<http://www.legislation.nsw.gov.au>

For Australian Standards
<http://www.standards.org.au>

Related NSW Health Policies

PD2005_108 *Policy and Guidelines and for the Safe Use of Glutaraldehyde in NSW Public Health Care Facilities* (under review)
PD 2005_081 *Guidelines and Competencies for the Handling of Cytotoxic Drugs and Related Waste in Health Care Establishments* (under review by WorkCover NSW)
PD2005_490 *Policy Framework and Guidelines for the Prevention and Management of Latex Allergy* (under review)
PD2005_132 *Waste Management Guidelines for Health Care Facilities*
PD2005_596 *Tuberculosis - Infection Control*
PD2005_247 *Infection Control Policy*
PD2005_351 *Provision of First Aid Facilities and Personnel*
PD2005_409 *NSW Health Workplace Health and Safety - Policy and Better Practice Guide*
PD2006_030 *Incident Management Policy*

Related NSW Legislation

Explosives Act 2003
Occupational Health and Safety Act 2000
Occupational Health and Safety Regulation 2001
Pesticides Act 1999
Pesticides Regulation 1995
Poisons and Therapeutic Goods Act 1966

Poisons and Therapeutic Goods Regulation 2002
Radiation Control Act 1990
Radiation Control Regulation 2004
Road and Rail Transport (Dangerous Goods)(Road) Regulation 1998

11.12 Related Documents (continued)

Related WorkCover NSW Publications

Code of Practice for Control of Workplace Hazardous Substances
Storage and Handling of Dangerous Goods Code of Practice 2005
Code of Practice for the Safe Use of Pesticides Including Herbicides in Non-Agricultural Workplaces
Code of Practice for the Safe Handling Storage of Enzymatic Detergent Powders and Liquids
Code of Practice for the Safe Use of Synthetic Mineral Fibres 1993
Code of Practice for the Preparation of Material Safety Data Sheets
Code of Practice for the Labelling of Workplace Substances
Risk Assessment Code of Practice 2001
Your Guide to Working with Asbestos

Related Department of Environment and Conservation (DEC) Guidelines

Radiation Guideline 1 - Monitoring Devices
Radiation Guideline 2 - Preparation of Radiation Safety Manuals
NSW Radiation Safety Series No 5 - Recommendations for Radiation Safety Officers and Radiation Safety Committees

Related Commonwealth Legislation

Industrial Chemicals (Notification and Assessment) Act 1989
Industrial Chemicals (Notification and Assessment) Regulations 1990
Therapeutic Goods Act 1989

Related Australian Standards - Hazard Warnings

AS 1319:1994 Safety Signs for the Occupational Environment
AS 1345:1995 Identification of the Contents of Piping, Conduits and Ducts.

Related Australian Standards - Storage of Dangerous Goods

AS 1940:2004 The Storage and Handling of Flammable and Combustible Liquids
AS/NZS 1596:2002 Storage and Handling of LP Gas
AS 1894:1997 The Storage and Handling of Non-Flammable Cryogenic and Refrigerated Liquids
AS 2507:1998 The Storage and Handling of Agricultural and Veterinary Chemicals
AS 2714:1993 The Storage and Handling of Hazardous Chemical Materials
Class 5.2 Substances (Organic Peroxides)
AS 3780:1994 The Storage and Handling of Corrosive Substances
AS/NZS 3833:1998 The Storage and Handling of Mixed Classes of Dangerous Goods
in Packages and Intermediate Bulk Containers
AS 3961:2005 Liquefied Natural Gas - Storage and Handling
AS 4326:1995 The Storage and Handling of Oxidising Agents
AS 4332:2004 The Storage and Handling of Gases in Cylinders
AS/NZS 4452:1997 The Storage and Handling of Toxic Substances

11.12 Related Documents (continued)

AS/NZS 4681:2000 The Storage and Handling of Class 9 Miscellaneous Dangerous Goods and Articles
AS HB 76:2004 Dangerous Goods: Initial Emergency Response

Related Australian Standards - Pressure Vessels & Pressure Piping

AS 2658:1988 Liquefied Petroleum (LP) Gas Portable and Mobile Appliances
AS 2896:1998 Medical Gas Systems - Installation and Testing of Non-Flammable Medical Gas Pipeline Systems
AS 3873:2001 Pressure Equipment - Operation and Maintenance
AS 4041:1998 Pressure Piping
AS 4289:1995 Oxygen and Acetylene Gas Reticulation Systems
AS 5601:2004 Gas Installations

Related Australian Standards - Safety in Laboratories

AS 2243.2:1997 Safety in Laboratories - Chemical Aspects
AS 2243.4:1998 Safety in Laboratories - Ionising Radiations
AS 2243.8:2006 Safety in Laboratories - Fume Cupboards
AS 2243.10:2004 Safety in Laboratories - Storage of Chemicals

Related Australian Standards - Hazardous Areas

AS/NZS 2430.3.3:2004 Classification of Hazardous Areas.
Part 3.3-Examples of Area Classification-Flammable Liquids
AS/NZS 2430.3.4:2004 Classification of Hazardous Areas.
Part 3.4-Examples of Area Classification-Flammable Gases
AS/NZS 2430.3.9:2004 Classification of Hazardous Areas.
Part 3.9-Examples of Area Classification-Miscellaneous
AS 102:19950 Control of Undesirable Static Electricity

Related Australian Standards - Personal Protective Equipment (PPE)

AS/NZS 1336:1997 Recommended Practices for Occupational Eye Protection
AS/NZS 1715:1994 Selection, Use and Maintenance of Respiratory Protective Devices
AS/NZS 2161.1:2000 Occupational Protective Gloves - Selection, Use and Maintenance

Related National Occupational Health & Safety Commission (NOHSC) Publications

Asbestos National Standard and National Code of Practice
Approved Criteria for Classifying Hazardous Substances
Exposure Standards for Atmospheric Contaminants in the Occupational Environment
List of Designated Hazardous Substances
National Code of Practice for the Preparation of Material Safety Data Sheets (2nd Edition)
Guidance Note for the Assessment of Health Risks Arising from the Use of Hazardous Substances in the Workplace

Other Related Publications

American Conference of Governmental Industrial Hygienists (ACGIH)
Industrial Ventilation. A Manual of Recommended Practice.
Australian Gas Association
AG 901 Code of Practice for NGV Refuelling Stations
Federal Office of Road Safety
Australian Code for the Transport of Dangerous Goods by Road or Rail
Standards Australia
AS/NZS 4757 Handling and Destruction of Drugs

12.0 Glossary of Acronyms

ADG Code	Australian Code for the Transport of Dangerous Goods by Road and Rail
AFOM	Australasian Faculty of Occupational Medicine
AICS	Australian Inventory of Chemical Substances
AIOH	Australian Institute of Occupational Hygienists
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
AS	Australian Standard eg AS 1715 Selection, Use and Maintenance of Respiratory Protective Devices
CAS Number	Chemical Abstracts Service Number
DEC	Department of Environment and Conservation
FORS	Federal Office of Road Safety
HR Department	Human Resource Department
MSDS	Material Safety Data Sheets
NATA	National Association of Testing Authorities
NICNAS	National Industrial Chemical Notification and Assessment Scheme
NOHSC	National Occupational Health and Safety Commission. NOHSC has now been replaced by the Australian Safety and Compensation Council (ASCC) however publication still carry the NOHSC title.
PPE	Personal Protective Equipment.