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COMING SOON

## NEW GUIDELINES FOR SAFE POOL OPERATION

The following Guidelines are presently under consideration:

- Aquatic Programs Emergency Procedures.
- Supervising Irresponsible Behaviour.
- Safe Aquatic Programs.

Guidelines Update Service:

Register for the Guidelines Update Service to ensure you receive updates on existing Guidelines as well as all new Guidelines.

The Guidelines Registration and Update Service Form is enclosed in these Guidelines and should be returned to:

GSPO Coordinator

RLSSA

43 Dalgety Street

Oakleigh Vic 3166

Facsimile (03) 9568 5988

## PREFACE

These revised Guidelines for Safe Pool Operation are the result of an exhaustive review process undertaken over the past 12 months.

The Guidelines for Safe Pool Operation were initially released in August 1991 following extensive discussions and consultation. In January 1994 a reprint, which contained a number of minor amendments, was issued to the broader Australian aquatics market.

These Guidelines were developed through a series of working groups, full Working Party discussions, consultation with facility operators, visits to aquatic facilities and through reference to international standards, resources and practices.

There were many inputs to the development of the Guidelines, including:

- The Royal Life Saving Society Australia.
  - Municipal Associations of Victoria.
  - Australian Leisure Institute.
  - Leisure Co.
  - YMCA.
  - Victorian Aquatic Industry Council.
  - Civic Mutual Plus.
  - AUSTSWIM.
  - Australian Swimming Coaches and Teachers Association
  - Sport and Recreation Departments and in particular the Management and Staff of the Royal Life Saving Society Australia, Victoria Branch.
- The Royal Life Saving Society Australia

## INTRODUCTION

### 1. **Status of the Guidelines for Safe Pool Operation**

The Guidelines have been developed in conjunction with expert personnel from a wide range of groups. They constitute the best advice that the group can offer at the time of publication. The Guidelines are intended to be voluntary, acting as a guide to operators on the safe operation of swimming facilities. They have no formal, legal or regulatory status.

### 2. **Scope**

The Guidelines have been primarily designed for application in municipal owned public swimming facilities. However, the Guidelines are intended to relate to all facilities in which members of the public are encouraged to attend for recreational, fitness or educational purposes.

### 3. **Purpose**

The development of the Guidelines were the result of:

- the need for a consolidated document which draws together advice from a range of legislation, regulations and expert statements from both Australia and overseas
- the need to provide standardized advice to those operating, designing or developing facilities
- the need to provide locally developed, practical guidelines for the safe operation of swimming facilities, to help protect municipalities and other operators from the imposition of inappropriate standards. Particularly from overseas, by the legal system
- to help operators in developing their own operations documents for their local facilities.

### 4. **Format**

The Guidelines have been developed in a loose leaf, as opposed to perfect bound format to ensure that they are capable of being modified and updated at any time.

### 5. **Ongoing Review**

It is intended that the Working Party will meet regularly to review comments and undertake formal evaluations of the Guidelines. In addition, new Guidelines may be developed and implemented from time to time, following the protocol for the development of Guidelines.

Operators are encouraged to provide written comments on the Guidelines for evaluation by the Working Party. A Feedback Form is provided in this Manual.

### 6. **Implementation**

It is not intended that all Guidelines be implemented immediately following publication. Indeed, it is recognized that it may take operators and support agencies some time to implement the Guidelines. For this reason it is suggested that for new Guidelines they be 'phased in' over a period following introduction.

### 7. **Assistance**

The Royal Life Saving Society Australia and other agencies involved in the development of the Guidelines are in a position to provide information and advice on the implementation of the Guidelines. For introductory telephone support utilize the RLSSA Guidelines for Safe Pool Operation Support Line through the RLSSA Victoria Branch Recreation Industry Service on (03) 9567 0000 or facsimile (03) 9567 5988.

8.

**Further Copies**

Further copies of the Guidelines for Safe Pool Operation can be obtained by contacting the local branch of the Royal Life Saving Society, or:

GSPO Coordinator

RLSSA

43 Dalgety Street

Oakleigh, Vic 3166

Phone (03) 9567 0000

Facsimile (03) 9568 5988

No assurance is offered that implementation of all guidelines or any portion of these guidelines will eliminate any hazard or exposure to loss or injury. Neither the Royal Life Saving Society Australia nor any Branch nor the individual members of the Working Party assume any responsibility for decisions made by individuals who refer to or use this Manual.

**The Royal Life Saving Society Australia**

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**1. TITLE OPERATIONS MANUALS**

**2. DATE ISSUED** 1 July 1996, ISSUE 2

**3. PURPOSE** To establish the minimum safety content of swimming pool Operations Manuals.

**4. DESCRIPTION**

- 4.1** (a) An Operations Manual should be prepared for every aquatic facility.  
(b) The Operations Manual should be specific to the particular facility, taking into account aspects such as design, size and location of the facility.
- 4.2** (a) Each Section of the manual should be capable of being issued in its own right, in order that those who may be responsible for the supervision of groups can receive the relevant sections.  
(b) The Manual should be covered by a document control procedure.
- 4.3** (a) All staff should receive a briefing on the contents of the manual on commencing employment.  
(b) All staff should also receive training pertaining to their key areas of responsibility.
- 4.4** Periodic practise sessions on performing the emergency procedures contained in the manual should be undertaken to ensure staff understand their role. At least one evacuation exercise should be conducted in each calender year.
- 4.5** The Operations Manual should include as a minimum details on the following:
- 4.5.1 Physical Layout**  
(a) Facility floor plan.  
(b) Pool/s dimensions.  
(c) Maximum number of patrons including bather loads.  
(d) Location of alarms, exits, fire fighting equipment, First Aid areas and rooms.
- 4.5.2 Supervisory Procedures**  
(a) Communication  
(b) Incident control and reporting  
(c) Emergency response (refer also Guideline GO2).
- 4.5.3 Personnel Policies and Procedures**  
(a) Lines of responsibility.  
(b) Employee position roles and responsibilities.  
(c) Personnel directory and call out procedures.
- 4.5.4 Training**  
(a) Induction and orientation.  
(b) Qualifications and re-qualifications.  
(c) In - service training.



4.5.5            **Emergency Action Plan (refer also Guideline GO2)**

4.5.6            **Occupational Health and Safety**

- (a) First Aid.
- (b) Personal protective clothing.
- (c) Incident reporting procedures.
- (d) Hazard identification, isolation and repair.
- (e) Chemical delivery, storage and handling.
- (f) Manual handling.
- (g) Material Safety Data Sheets.
- (h) Plant inspections and frequency thereof.

4.5.7            **Maintenance**

- (a) Plant and equipment.
- (b) Buildings.
- (c) Fault reporting and repair.

4.5.8            **Water Quality**

- (a) Operating to relevant health regulations.
- (b) Turbidity and corrective action.
- (c) Overdosing of pool chemicals and corrective actions..

4.5.9            **Programs**

- (a) List of programs offered.
- (b) Program safety requirements.
- (c) Pool or room set up and requirements.

1. TITLE            **EMERGENCY ACTION PLAN**

2. DATE ISSUED 1 July 1996, ISSUE 1

3. PURPOSE.      To establish guidelines on the minimum safety content of an emergency action plan.

4. DESCRIPTION.

4.1                An emergency action (response) plan (EAP) is a set of documented and well rehearsed procedures which are initiated by a responsible employee on the occurrence of a major incident.

4.2                The minimum safety content of an emergency action plan should include details on the following:

4.2.1             **Routine aquatic emergency procedures**

- (a) Minor incident.
- (b) Overcrowding.
- (c) Disorderly behaviour.
- (d) Lack of water clarity.
- (e) Chemical irregularities.

4.2.2             **Major Incidents**

Incidents considered to be life threatening for any and all individuals including:

- (a) Suspected drowning.
- (b) Suspected spinal injury.
- (c) Cardiac incident.
- (d) Chemical spill or leak

4.2.3             **Staff Response (eg, Supervisor or Lifeguard)**

- (a) Minor incident.
- (b) Major incident.
- (c) Teamwork.
- (d) Communication.
- (e) Equipment.
- (f) First Aid.
- (g) Reporting.

4.2.4             **Rescue and First Aid Equipment**

- (a) List of equipment.
- (b) Location of equipment.

#### 4.2.5

##### Emergency Services

- (a) List of relevant emergency services.
- (b) Contact details for each service.
- (c) Call out procedures.

#### 4.2.6

##### Evacuation

- (a) Fire.
- (b) Chemical spill or leak.
- (c) Bomb threat.
- (d) Power failure (Blackout).
- (e) Structural failure.
- (f) Use of outdoor pools during electrical storms (eg, lightning).

#### 4.2.7

##### Critical Incident Stress (CIS) Debriefing/Post Trauma Counselling

- (a) Procedures for initiation of CIS debriefing.
- (b) Contact name and telephone numbers.

#### 4.2.8

##### Practising Emergency Procedures

- (a) Frequency.
- (b) Training.
- (c) Simulation.
- (d) Public alert.

1. TITLE RESCUE EQUIPMENT

2. DATE ISSUED 1 July 1996, ISSUE 2

3. PURPOSE To provide advice regarding the nature of rescue equipment to be available at a swimming pool.

4. DESCRIPTION

4.1 All swimming pools should provide rescue equipment for use in an emergency.

4.2 The type of equipment provided will be at the discretion of the pool management and may include items such as:

- reaching poles
- rescue tubes
- lifejackets
- throwing ropes or throwing bags
- spineboard
- self contained breathing apparatus
- oxygen equipment.

4.3 The location of the rescue equipment will vary according to features such as the nature of the pool, location of lifeguards, use of the pool. However, rescue equipment should be within easy access of every lifeguard when on duty.

4.4 Those facilities with a mix of indoor and outdoor pools must ensure that rescue equipment is readily available in each location.

**1. TITLE HIRE OF FACILITIES**

**2. DATE ISSUED** 1 July 1996, ISSUE 2

**3. PURPOSE** To provide guidance to facility operators on particulars to be taken in the hire of facilities.

**4. DESCRIPTION**

**4.1** Those who hire a facility, or part thereof, should receive from the management a letter of agreement or contract which clearly establishes the responsibility of the management and the hirer. This letter should be countersigned by the hirer to indicate that the terms and conditions have been accepted.

**4.2** The letter of agreement should clearly establish

- information regarding the likely number of persons using the facility, and if appropriate their skills
- the name of the hirer's representative who will be personally present and in charge of the group
- the age of hirer and hirer's representative
- the number of lifeguards to be present during the session
- respective responsibilities of the facility management and the hirer in an emergency. A distinction should be drawn between generated emergencies and facility emergencies (eg structural problems)
- who is responsible for insuring the activity
- any local laws which must be enforced
- rules of behaviour to be followed, if different to the normal rules
- any specific advice to be given to users
- responsibility for the provision of First Aid Services
- access to First Aid equipment, or otherwise

**4.3** The hiring group should be provided with a copy of the emergency action plan and procedures and should be requested to sign to the effect these have been read and understood.

**4.4** School user groups need to be aware of their responsibilities under any existing ministerial guidelines relevant to their State or Territory.

**4.5** A hirer should be a minimum of 18 years of age, proof of which should be provided where doubt may exist.

**1. TITLE** POOL COVERS

**2. DATE ISSUED** 1 July 1996, ISSUE 1

**3. PURPOSE** To provide advice and guidance on the use of pool covers for both indoor and outdoor environments.

**4. DESCRIPTION**

- 4.1 Pool covers should be fitted with fastening devices allowing longitudinal fixing to reduce the chance of being dislodged in strong winds.
- 4.2
  - (a) Pool covers should not be partially removed to allow lap swimming unless under strict and constant supervision.
  - (b) Recreational swimming is not recommended when pool covers have been partially removed.
- 4.3 Pool covers should never be used as a substitute for appropriate and adequate isolation fencing.
- 4.4 Installation and removal of pool covers should be carried out in accordance with manufacturers operating instructions and occupational health and safety guidelines.
- 4.5
  - (a) Pool covers should be stored and maintained in accordance with the manufacturers recommendations.
  - (b) Pool covers and storage frames should not be permanently or temporarily located thereby inhibiting supervisory sightlines or creating a hazard to the public or staff.

**1. TITLE**            **ELECTRICAL SAFETY**

**2. DATE ISSUED** 1 July 1996, ISSUE 1

**3. PURPOSE**        To establish guidelines for the safe operation of electrical equipment in swimming pool facilities.

**4. DESCRIPTION**

- 4.1**                Work on electrical installations and equipment requires specialist skill. Such work should only be carried out by approved or registered employees or trades - people.
- 4.2**                Electrical equipment should be kept away from water and swimming pools.
- 4.3**                In situations where it is necessary to use electrical equipment near swimming pools, the following precautions should be taken
- (a) The general purpose outlet (GPO) into which electrical equipment is to be connected should be earth leakage protected (eg, safety switch).
  - (b) The GPO should be installed at least 3 metres distance from the nearest pool and at least 1 metre above the floor level.
  - (c) Equipment should not be left unattended.
  - (d) Where practicable compressed air operated equipment should be used.
  - (e) Electrical cords and equipment should be highlighted and preferably kept clear of concourses to remove any chance of electrocution or injury as a result of a trip or fall.
  - (f) The pool should be vacated by all bathers when electrical equipment is to be used nearby.
- 4.4**                Workers should not use or repair any electrical cord, fixture, terminal box or equipment while standing in water or on a wet concourse.
- 4.5**                Every swimming pool should have an effective system for ensuring faulty equipment is reported to management, and immediately withdrawn from use or effectively isolated until repaired by an appropriately qualified person.
- 4.6**                Where electrically powered pool vacuum cleaners are used, advisory signs or sign should be placed in a prominent position around the pool concourse advising people not to enter the water.

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## PURPOSE OF THE TECHNICAL OPERATIONS GUIDELINES

The purpose of these guidelines is to provide a guide to the use and storage of chemicals used in the aquatic industry. It is intended to be a **useful first reference only** and does not replace the relevant industry regulations and best practice such as the various State and Territory Dangerous Goods Act, Regulations and Codes of Practices, Occupational Health and Safety Acts, Regulations and Codes of Practice, Hazardous Substance Acts, Regulations and Codes of Practice, relevant Australian Standards and Material Safety Data Sheets. Used in conjunction with these documents, the Technical Operations Guidelines will be a very useful tool when dealing with Hazardous Substances and Dangerous Goods.

### WHO SHOULD READ THESE GUIDELINES?

These Guidelines should be read by any person responsible for the handling, storage or purchase of Hazardous Substances or Dangerous Goods and any person responsible for the training or supervision of those persons.

### WHAT PROCESSES ARE INVOLVED IN THE MANAGEMENT OF HAZARDOUS SUBSTANCES AND DANGEROUS GOODS?

- Risk Management associated with the storage and handling of Dangerous Goods and Hazardous Substances
- Drafting of Emergency Plans, Manifests and Registers
- Provision of Material Safety Data Sheets (MSDS)
- Ensuring adequate separation between incompatible substances
- Training of staff in the risks and safe handling procedures
- Posting of appropriate signage
- Provision of adequate Personal Protective Equipment (PPE)
- Ensuring that any spillage is contained and disposed of appropriately
- Emphasis on eliminating / reducing the exposure of the public to chemicals

### APPLICATIONS SPECIFIC TO AQUATIC ENVIRONMENT

Generally the sanitation of the water requires a powerful oxidant which may be either chlorine or bromine based and a method to adjust the pH. Other chemicals may be used to supplement the water balance (scale or corrosion activity) within the pool.

Cleaning compounds used may be chlorine or ammonia based.

The storage and handling of such products have risks that may preclude the mixing or close storage with incompatible chemicals. The storage may require spill containment zones or separation zones to isolate one chemical from the other.

## PURPOSE OF THE TECHNICAL OPERATIONS GUIDELINES

Individual site requirements will vary but some of the following bulk chemicals could be on site:

- Sodium Hypochlorite
- Chlorine Gas
- Calcium Hypochlorite
- Bromine based products
- Carbon Dioxide Gas
- Soda Ash
- Sodium Bicarbonate
- Sodium Thiosulphate
- Calcium Chloride
- Cyanuric Acid based products
- Hydrochloric Acid
- Aluminium Sulphate
- Algaecides

The inappropriate mixing or storage of chemicals may cause injury through the release of poisonous gases, fire or explosion.

Uncontained chemical spills may cause environmental damage and possible personal injury.

Equipment used in the handling of the chemicals may be dosing pumps, tanks, solenoid valves, pressure vessels or hand trucks for moving from one area to another.

Safety equipment is always to be considered when handling these chemicals. Safety equipment may include wash down showers and various Personal Protective Equipment (PPE).

In some States, the relevant Acts and Regulations have moved away from being prescriptive in issues like separation distances and instead refer the reader to the relevant Australian Standard. In addition, they require the reader to undertake a Risk Management assessment of their chemical use and storage. The Technical Operations Guidelines reflect the differences in the source documentation from state to state. With issues such as separation distances, where difference existed, the more conservative distance is used in this document.

There is no substitute for a proper Risk Management evaluation of chemical use and storage, and aquatic centres are recommended to undertake this process.

### ACKNOWLEDGEMENT

The Royal Life Saving Society Australia would like to acknowledge the contribution made to this document by the Victorian Aquatic Industry Council (VAIC) and in particular, the Standing Committee for Facility Management.

**1. TITLE OCCUPATIONAL HEALTH & SAFETY****2. DATE ISSUED** 1 July 2005, ISSUE 1**3. ABSTRACT** This Section discusses the application of the various State and Territory Occupational Health and Safety Acts.

The governing legislation for this in each state are the different Occupational Health and Safety Acts. Under the umbrella of the OH & S Acts come the Regulations, eg. in Victoria there is the Occupational Health and Safety (Hazardous Substances) Regulations 1999. These regulations are a compulsory minimum for each state. Below the Regulations (in an enforcement sense) come various Codes of Practice. These Codes of Practice are not compulsory but the requirements of the Occupational Health and Safety Acts must be met, in other words, if you are not following a particular Code of Practice, then you have to be able to show how your alternative complies with the Occupational Health and Safety Act in your State or Territory.

It is important to note that this document does not replace the applicable Occupational Health and Safety Acts, Regulations and Codes of Practice in any way. This Section gives a summary of the obligations of the employer and the employee in relation to occupational health and safety.

**4. EMPLOYER'S REQUIREMENTS**

**4.1** Under the various Occupational Health and Safety Acts, employers are required to fulfil several obligations, all of which fall under the umbrella of providing a safe workplace and one that is without risks to health as far as practicable. Employers should fulfil their Duty of Care by:

- a) Providing and maintaining safe plant and systems of work, including those in connection with the use, handling, storage and transport of plant and substances.
- b) Providing adequate facilities for the welfare of employees.
- c) Providing information, instruction, training and supervision to employees including inductions on commencement of employment, in relation to any workplace procedures and hazards. Accurate records of the instruction, training and supervision provided should also be kept.
- d) Keeping accurate records relating to the health and safety of the employees of the employer.
- e) Ensuring that any employee working in a hazardous environment is fully informed of the risk.

**4.2** The various Occupational Health and Safety Acts also require that any independent contractor engaged by the employer and any employees of that contractor, are defined as employees for the purpose of the Acts. The duties of the employer extend to such an independent contractor and the contractor's employees in relation to matters over which the employer:

- a) Has control; or
- b) Would have had control but for any agreement between the employer and the independent contractor to the contrary.

- 4.3 The duty of care expected of an employer towards their employees also extends to other people so that, customers, visitors and the general public, are not endangered by the conduct of the business. Employers may expose themselves to a public liability claim should the general public and visitors come into contact with chemicals.

## 5. EMPLOYEE REQUIREMENTS

- 5.1 All employees also have responsibilities under the various State and Territory Occupational Health and Safety Acts. An employee is expected to:
- a) Take reasonable care for their own safety and for the safety of anyone who may be affected by their actions or omissions.
  - b) Co-operate with their employer with respect to any actions taken by the employer to comply with the Acts, i.e. use equipment provided for health and safety purposes and obey reasonable instruction that the employer may give in relation to health and safety in the work place.
- 5.2 An employee is at risk of prosecution if they fail to comply with the expectations of the various Occupational Health and Safety Acts.

## 6. DESIGNATED WORK GROUPS

- 6.1 Designated work groups can be initiated by either an employee or the employer and are determined by negotiations between the employer and the employees. In determining the composition of the designated work groups, the following factors must be taken into consideration:
- a) The number of employees at the workplace.
  - b) The nature of each type of work performed at the workplace.
  - c) The number and grouping of employees who perform the same or similar types of work.
  - d) The areas at the workplace where each type of work is performed.
  - e) The nature of any hazards at the workplace.
  - f) Any overtime or shift working arrangements.
  - g) The employer should ensure a written list of the designated work groups at the workplace is prepared and kept up to date.
  - h) The list of the designated work groups is displayed in a prominent place at the workplace.
- 6.2 Each designated work group may elect one of its members as the group's health and safety representative. These health and safety representatives have the power to inspect the workplace of their designated working group immediately on any incident or potential incident or at any time after giving reasonable notice to the employer.

- 6.3 Due to the small number of employees and the transient nature of staff at some aquatic facilities, it may be impractical to have a designated work group. One solution may be to have a Designated Safety Officer that has been appointed by management. Before appointing a Designated Safety Officer, consult with the relevant Workcover Authority in your State or Territory.

## 7. HEALTH AND SAFETY COMMITTEES

- 7.1 When requested by a health and safety representative, or when required to do so by regulation, an employer must establish a health and safety committee (within three months from the date of request). At least half of the members of the committee are to be current employees.

The function of a health and safety committee is to:

- a) Facilitate co-operation between an employer and the employees in instigating, developing and carrying out measures designed to ensure the health and safety at work of the employees.
- b) Formulate, review and disseminate to the employees the standards, rules and procedures relating to health and safety which are to be carried out or complied with at the workplace.
- c) Subject to this action, health and safety committees shall meet at intervals not exceeding three months in duration.
- d) A meeting of the health and safety committee can be held at any time at the request of a health and safety representative, at the request of a prescribed number of employees or at the request of a majority of the employees at any workplace.

## 8. NON-COMPLIANCE

Inspectors from the various State and Territory Workcover Authorities can issue Improvement Notices and Prohibition Notices. An Improvement Notice contains written directions to a person to remedy a breach of the Act within a specified time. A Prohibition Notice is a written direction prohibiting any activity that will, or is likely to, involve an immediate risk to the health and safety of any person. Breach of these notices (including the Provisional Improvement Notice given by a health and safety representative) may lead to prosecution under the various Acts.

If found guilty of a breach of the various Acts, an individual or company may be fined and there is the possibility of custodial sentences for individuals.

**9. FURTHER INFORMATION**

Further information can be gained from the various Workcover Authorities in each State and Territory. Please note that the postal address is for the capital city in each State and Territory. Further contact details are available on the relevant web sites.

**Australian Capital Territory**

Agency: ACT Workcover  
Web site: [www.workcover.act.gov.au](http://www.workcover.act.gov.au)  
Email: [workcover@act.gov.au](mailto:workcover@act.gov.au)  
Phone: 02 6205 0200  
Postal: PO Box 224, Civic Square, ACT, 2608

**New South Wales**

Agency: Workcover NSW  
Web site: [www.workcover.nsw.gov.au](http://www.workcover.nsw.gov.au)  
Phone: 02 0431 5000  
Postal: Locked Bag 2906, Lisarow, NSW, 2252

**Northern Territory**

Agency: NT Worksafe  
Web site: [www.worksafe.nt.gov.au](http://www.worksafe.nt.gov.au)  
Email: [ntworksafe.deet@nt.gov.au](mailto:ntworksafe.deet@nt.gov.au)  
Phone: 1800 019 115  
Postal: GPO Box 4821, Darwin, NT, 0801

**Queensland**

Agency: Workcover Queensland  
Web site: [www.workcover.qld.gov.au](http://www.workcover.qld.gov.au)  
Email: [info@workcoverqld.com.au](mailto:info@workcoverqld.com.au)  
Phone: 1300 362 128  
Postal: GPO Box 2459, Brisbane, Qld, 4001

**South Australia**

Agency: Workcover Corporation of South Australia  
Web site: [www.workcover.com](http://www.workcover.com)  
Email: [info@workcover.com](mailto:info@workcover.com)  
Phone: 131 855  
Postal: GPO Box 2668, Adelaide, SA, 5001

**Tasmania**

Agency: Workcover Tasmania  
Web site: [www.workcover.tas.gov.au](http://www.workcover.tas.gov.au)  
Email: [wstinfo@dier.tas.gov.au](mailto:wstinfo@dier.tas.gov.au)  
Phone: 1300 366 322  
Postal: Workplace Standards Tasmania, PO Box 56, Rosny Park, Tas, 7018

**Victoria**

Agency: Victorian Workcover Authority  
Web site: [www.workcover.vic.gov.au](http://www.workcover.vic.gov.au)  
Email: [info@workcover.vic.gov.au](mailto:info@workcover.vic.gov.au)  
Phone: 1800 136 089  
Postal: Level 24, 222 Exhibition Street, Melbourne, Vic, 3000

**Western Australia**

Agency: Workcover WA  
Web site: [www.workcover.wa.gov.au](http://www.workcover.wa.gov.au)  
Email: [postmaster@workcover.wa.gov.au](mailto:postmaster@workcover.wa.gov.au)  
Phone: 1300 794 744  
Postal: 2 Bedbrook Place, Shenton Park, WA, 6008

**Federal** (please note that the Workcover authority in each state is the governing body and the NOHSC is included for general reference only).

Agency: National Occupational Health and Safety Commission  
Web site: [www.nohsc.gov.au](http://www.nohsc.gov.au)  
Email: [info@nohsc.vic.gov.au](mailto:info@nohsc.vic.gov.au)  
Phone: 02 6279 1000  
Postal: GPO Box 1577, Canberra, ACT, 2601

**1. TITLE        EMERGENCY PLANS****2. DATE ISSUED**    1 July 2005, ISSUE 1**3. ABSTRACT**    Each aquatic facility at which there are Dangerous Goods or Hazardous Substances will need to develop an Emergency Plan for these chemicals.**4. CONTENTS**

The Emergency Plan should contain (but is not limited to) the following:

- a) A list of all dangerous goods and hazardous substances, the maximum amounts and their storage locations on site. This is sometimes called a chemical register. It should also contain all the MSDS documentation. It should be located in two places; one near the chemicals stored and one remote from this area if the area becomes inaccessible.
- b) A site plan.
- c) How to raise the alarm.
- d) Responsibilities of key personnel.
- e) A plan to **contain** any spills for all the contents of any chemical stored and used on site.
- f) A list of (and locations of) equipment needed to contain chemical spills, including any Personal Protective Equipment (PPE) that may be required.
- g) A plan to **clean up** spills for each chemical. These plans may involve emergency services or other organisations and should only involve aquatic centre staff in the clean up if it is safe to do so.
- h) A list of (and locations of) equipment needed to clean up chemical spills that have been determined safe for aquatic centre staff to deal with. This list must include personal protective equipment.
- i) A plan to deal with an overdose of any chemical into the swimming pool water.
- j) A plan to deal with fire.
- k) A plan to deal with an uncontrolled reaction.
- l) A list of phone numbers for the various authorities and responsible persons to be notified in the event of an emergency, eg. fire services, ambulance service, Poisons Information Centre, water authority, environmental protection agencies, local government etc.

**4.1**        The Emergency Plan needs to be available to all staff who are dealing with chemicals.

**4.2**        The Emergency Plan should be practiced at least annually so that the relevant staff are fully conversant with the plan and the equipment. Results of the practice of the Emergency Plan should be analysed with a focus on continuous improvement.

**4.3**        All staff who deal with chemicals and any other staff as required, need to be trained in the Emergency Plan. This training needs to be documented, showing details of what was covered, who attended and when it was held.



- 4.4 The Emergency Plan for chemical spills etc. should be an integral part of the aquatic facilities Emergency Action Plan.

Note: This Guideline should be cross-referenced with guideline GO2 Emergency Action Plan.

**1. TITLE            DANGEROUS GOODS OR HAZARDOUS SUBSTANCES**

**2. DATE ISSUED**    1 July 2005, ISSUE 1

**3. ABSTRACT**    Dangerous Goods are those substances that have an immediate chemical or physical effect such as fire or corrosive action. Hazardous Substances relate to those substances that have a health effect.

**4. DANGEROUS GOODS**

**4.1**            Dangerous Goods are those substances that may be corrosive, flammable, explosive, toxic, oxidising or water reactive.

**4.2**            Dangerous Goods are classified as those which will have an immediate physical or chemical affect on property, people or the environment by fire, explosion, corrosion, and poisoning.

**5. HAZARDOUS SUBSTANCES**

**5.1**            Hazardous Substances are those substances that may have a health effect on those who deal with them. Hazardous Substances can also be classified as Dangerous Goods.

**5.2**            The types of chemicals used for the disinfection of water within the aquatic industry usually fall into the category of Hazardous Substances. They also may be classified as Dangerous Goods.

**6. LEGISLATION**

Dangerous Goods and Hazardous Substances are generally covered by different legislation. Dangerous Goods generally come under Dangerous Goods Acts and Regulations and Hazardous Substances generally come under Workplace or Occupational Health and Safety Acts. Please refer to the applicable legislation for Dangerous Goods or for Hazardous Substances in your State or Territory.

**7. APPLICATIONS SPECIFIC TO THE AQUATICS INDUSTRY**

**7.1**            Some typical chemicals that may be found in common use in the aquatic environment may include:  
(see over)

TABLE TO3.1 CHEMICALS COMMONLY USED BY THE AQUATICS INDUSTRY

Chemical	Common Name	Hazard	Hazardous Substances Classifications	Dangerous Goods Classifications
Sodium Hypochlorite	Hypo	Strong Oxidizing Agent	Corrosive	8
Calcium Hypochlorite	Dry Chlorine	Strong Oxidizing Agent	Corrosive	5.1
Bromine (BCDMH or Sodium Bromide)	Bromine	Strong Oxidizing Agent	Corrosive	5.1
Chlorine Gas		Strong Oxidizing Agent	Toxic	2.3 (Subs 5.1)
Calcium Chloride		Not Classified	Irritant	N/A
Hydrochloric Acid	Muriatic Acid	Corrosive	Very Corrosive	8
Isocyanuric Acid	Cyanuric Acid	Mild Acid	N/A	N/A
Aluminium Sulphate	Alum	Mild Acid	N/A	N/A
Sodium Carbonate	Soda Ash	Irritant	Irritant	N/A
Sodium Bicarbonate	Bicarb	Mild Alkali	N/A	N/A
Sodium Thiosulphate	Thio	Not Classified	N/A	N/A
Sodium Bisulphate	Dry Acid	Corrosive	Causes Burns	8
Poly Aluminium Sulphate	PAC	Mild Alkali	N/A	N/A
Carbon Dioxide	CO2	Oxygen Displacing	N/A	2.2
Ozone	Ozone	Strong Oxidising Agent	Highly Irritant	N/A

**1. TITLE        REGISTERS AND MANIFESTS****2. DATE ISSUED** 1 July 2005, ISSUE 1

**3. ABSTRACT** A Register of Hazardous Substances is required to be held at each aquatic centre. If the quantities kept exceed the quantities listed in the various Dangerous Goods Regulations, then a Manifest is also to be prepared and maintained.

This provides the emergency services authority with information on the quantity, type, and location of Dangerous Goods.

**4. REGISTER OF HAZARDOUS SUBSTANCES**

**4.1** You must make certain that all Hazardous Substances used in your workplace are identified and listed on a Register. The Register is simply a list of the product names of all the Hazardous Substances used in the workplace accompanied by the current MSDS for each of these substances.

The Register needs to be updated when:

- a) A new Hazardous Substance is introduced into the workplace.
- b) The use of existing Hazardous Substances is discontinued.
- c) A revised MSDS is provided by the manufacturer, importer or supplier.

**4.2** A Register should not be confused with a Manifest. A Manifest is required for certain quantities of Dangerous Goods under the various State and Territory Dangerous Goods (Storage and Handling) Regulations. The primary purpose of a Manifest is to provide information (such as site maps and the types and quantities of Dangerous Goods stored) to the emergency services authority in the event of an emergency.

**4.3** The Register is required for **all** Hazardous Substances under the various Occupational Health and Safety (Hazardous Substances) Regulations. The Register is designed to provide you and your employees with a source of information to assist in the management of Hazardous Substances in the workplace. You should keep both a Register and a Manifest.

**5. MANIFESTS**

**5.1** You must ensure that a Manifest is prepared when the quantity of Dangerous Goods exceeds the quantities listed in the various Regulations. Below, in Table 2, is a **summary** of those quantities and this should be used as a guide only. For detailed quantities, please refer to the relevant Dangerous Goods (Storage and Handling) Regulations in your State or Territory.

Table TO4.1 Dangerous Goods Manifest Quantities

Class	Packing Group	Manifest Quantity
2.2 (Excludes subsidiary risk 5.1)	N/A	10,000L
2.3	N/A	500L
3, 4.1, 4.2, 4.3, 5.1, 5.2, 6.1 or 8	I	500kg or L
	II	2,500kg or L
	III	10,000kg or L

5.2 The principal purpose of the Manifest is to provide the emergency services authority with the information on the quantity, type and location of Dangerous Goods stored and handled on the premises, to enable them to respond appropriately if called to an incident.

5.3 The Manifest must be kept on the premises in a place that is easily accessible to the emergency services authority. It should be located near the Outer Warning Placard at the front of the premises, unless otherwise agreed with the emergency services authority. It should be housed in a holder of substantial weatherproof construction.

The Manifest must include the following information:

- a) The name and contact details of the occupier of the premises.
- b) The address of the premises.
- c) The date when the Manifest was prepared or last amended.
- d) Contact information for at least 2 people who may be contacted in the event of an incident.
- e) A summary list of the Classes and Packing Groups (if any) of the Dangerous Goods at the premises.
- f) Information about Dangerous Goods stored in bulk in other than intermediate bulk containers (IBC).
- g) Information about packaged Dangerous Goods in IBCs.
- h) Information about dangerous goods in manufacture.
- i) Dangerous Goods in transit.
- j) A plan of the premises.

5.4 The Manifest must be revised when there is a change in any of the above information.

Note: A sample Manifest form is attached in Appendix A.

**6. PACKING LIMITS**

6.1 Dangerous Goods (other than Class 1, 2 and 7) are assigned to Packing Groups. The Packing Groups are classified according to the degree of risk the goods present during transportation.

- Great Danger = Packing Group 1
- Medium Danger = Packing Group 2
- Minor Danger = Packing Group 3

- 6.2 Assignment to a Packing Group will depend on the class and the Subsidiary Risks of the goods and on the nature of the physical hazard presented by the goods.
- 6.3 If the goods present multiple hazards then they are assigned the category appropriate to the most severe hazard.
- 6.4 Dangerous Goods are assigned to a Packing Group in accordance to regulation 2.5 in the Australian Dangerous Goods Regulations.

**Table TO4.2 Examples of Chemical Packing Groups Specific to the Aquatics Industry**

<b>Chemical</b>	<b>Packing Group</b>
Sodium Hypochlorite (Hypo)	Packing Group 3
Calcium Hypochlorite (Dry Chlorine)	Packing Group 2
Calcium Chloride Flake	Not Classified as a Dangerous Good by criteria of the Australian Dangerous Goods Code = No Packing Group
Chlorine Gas	No Packing Group assigned though is classified as a Dangerous Good by criteria of Australian Dangerous Goods Code
Ozone Gas	No Packing Group assigned due to nature of Ozone – produced and dispersed on site
Sodium Bromide	Packing Group 2
BCDMH	Packing Group 2
Trichloroisocyanuric Acid	Packing Group 2
Dichloroisocyanuric Acid (Sodium Salt)	Packing Group 2
Isocyanuric Acid	Not Classified as Dangerous Goods by criteria of the Australian Dangerous Goods Code = No Packing Group
Hydrochloric Acid	Packing Group 2
Aluminium Sulphate	Not Classified as Dangerous Goods by criteria of the Australian Dangerous Goods Code = No Packing Group
Sodium Bicarbonate	Not Classified as Dangerous Goods by criteria of the Australian Dangerous Goods Code = No Packing Group

**7. PLAN OF THE PREMISES**

- 7.1 The purpose of the plan of the premises is to identify the locations, buildings and structures on the site where Dangerous Goods are stored and handled. It should be easy for emergency services personnel to read and access.

7.2

The plan of the premises requires the following information:

- a) Locations and identification number or code of:
  - i. Bulk containers and bulk storages.
  - ii. Storage areas for packaged Dangerous Goods and Dangerous Goods in IBCs.
  - iii. Areas where Dangerous Goods are manufactured.
  - iv. Areas where Dangerous Goods in transit may be located.
- b) Legend for the identification numbers and codes for the above areas.
- c) Main entrance and other entry points to the premises.
- d) Location of essential fire services including isolation points for fuel and power.
- e) Location of the manifest for the premises.
- f) Location of all drains on the site.
- g) Nature of the occupancy on adjoining sites or premises.

7.2

In addition the following information may be relevant:

- a) The location of all buildings, amenities, structures and internal roadways on the premises and their designed uses.
- b) Areas of public access adjacent to the site and parking (if any).
- c) Public street names adjacent to the premises and evacuation routes.
- d) Nature of fences (if any).

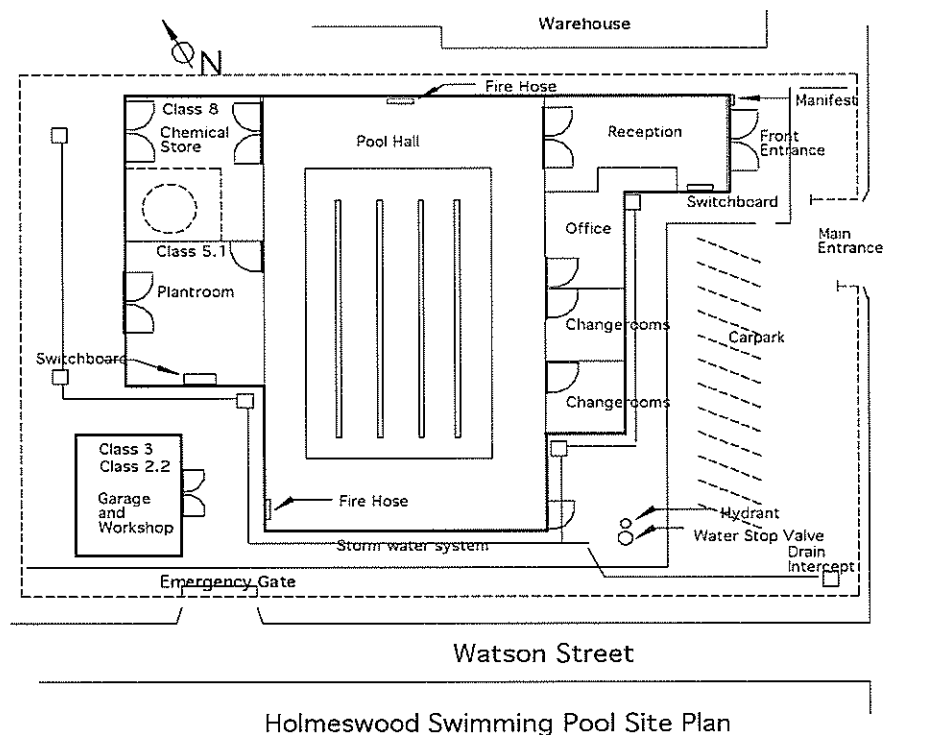


Fig TO4.1 Sample Plan of the Premises

1. TITLE PLACARDING

2. DATE ISSUED 1 July 2005, ISSUE 1

3. ABSTRACT Placarding refers to the installation of signage at the entrances and at storage areas at the site. The purpose of placarding is to notify emergency services to potential chemical hazards on the site.

4. Regulations require that the appropriate placards be displayed at a workplace if the quantity of the various classes of Dangerous Goods that are kept, exceed a prescribed aggregate amount. Table 4 below (Excerpt from Schedule 2 of Dangerous Goods (Storage and Handling) Regulations 2000 Victoria) describes those quantities of Dangerous Goods that require notification by placarding and the preparation of the Manifest for the site.

5. PLACARDING

5.1 If the prescribed aggregate quantity of any one class of Dangerous Goods at a workplace is exceeded, the occupier must place Hazchem Signs (outer warning notice) at every entrance to the site.

5.2 If a workplace requires Hazchem Signs (outer warning notices) then a Composite Warning Placard is required for all storages of Dangerous Goods.

5.3 Placarding must be placed at:

- a) The entrance to any building in which Dangerous Goods are stored.
- b) Within the building at the entrance to each room where the Dangerous Goods are stored.
- c) Adjacent to external storage where Dangerous Goods are stored.

5.4 Placarding must be of a sufficient size to accommodate each of the labels required. Formatting and dimensions of the placards should be in line with the various State and Territory Dangerous Goods Regulations.



Table TO5.1 Excerpt from Schedule 2 of Dangerous Goods (Storage and Handling) Regulations 2000 (Victoria)

Description of Dangerous Goods	Packing Group	Placarding Quantity	Manifest Quantity	Fire Protection Quantity
Class 2.2 (excludes Subsidiary Risk 5.1)	N/A	5,000L	10,000L	20,000L
Class 2.3	N/A	50L	500L	2,000L
Class 5.1, 5.2 or 8	I	50Kg or L	500Kg or L	2,000KG or L
	II	250KG or L	2,500KG or L	10,000KG or L
	III	1,000KG or L	10,000KG or L	20,000KG or L
	Mixed Packing Groups in a single Class with the quantity of each Packing Group below the specified quantity for the Packing Group	1,000KG or L	10,000KG or L	20,000KG or L
Mixed Classes of Dangerous Goods where none of the Classes, types or Packing Groups (if any) present exceeds the quantities specified for the relevant quantity above	N/A	5,000KG or L The quantity only applies where the Placarding Quantity for an individual Class that is present is 5,000KG or L	10,000KG or L	20,000KG or L

In relation to Table TO5.1 (above), please refer to individual State and Territory legislation.

**6. HAZCHEM CODES**

6.1 Placarding must comply with the appropriate standards to indicate the required Hazchem Code. The Hazchem Code provides advisory information to the emergency services to enable them to take appropriate action in dealing with a chemical situation.

**Table TO5.2 Example Hazchem Code: Chlorine Gas 2XE**

Hazchem Code	Meaning
2	Indicates that emergency services should use water fog to combat the spill.
X	Indicates that the emergency services should use full protective equipment including breathing apparatus. They should contain the Dangerous Goods on site and seek to avoid spillage into drains and waterways.
E	Indicates that the Officer in Charge of the emergency should consider an evacuation of the site.

Table TO5.3 Hazchem Code Interpretation

Number		Meaning	
1		Water Jets	
2		Water Fog	
3		Foam	
4		Dry Agent	
<b>First Letter</b>			
P	V	Full Protective Clothing *	Dilute
R		Full Protective Clothing *	Dilute
S	V	Breathing Apparatus	Dilute
S	V	Breathing Apparatus for Fire Only	Dilute
T		Breathing Apparatus	Dilute
T		Breathing Apparatus for Fire Only	Dilute
W	V	Full Protective Clothing *	Contain
X		Full Protective Clothing *	Contain
Y	V	Breathing Apparatus	Contain
Y	V	Breathing Apparatus for Fire Only	Contain
Z		Breathing Apparatus	Contain
Z		Breathing Apparatus for Fire Only	Contain
<b>Second Letter</b>			
E		Consider Evacuation	

Note:

V = Danger of violent reaction or explosion

\* = Full protective clothing includes Breathing Apparatus

7. PLACARD EXAMPLES



Fig TO5.1 Composite Warning Placard for Goods Stored in Packages\*

\* Please note that composite warning signs are no longer required to show the HAZCHEM code (4WE in this example), just the Dangerous Goods diamonds. Existing signs that have the HAZCHEM code as shown are still compliant though when they are replaced they should meet the new standard.

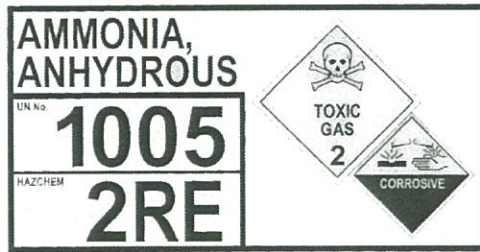


Fig TO5.2 Composite Warning Placard (Bulk Container)



Fig TO5.3 Hazchem Placard (Outer Warning Notice)

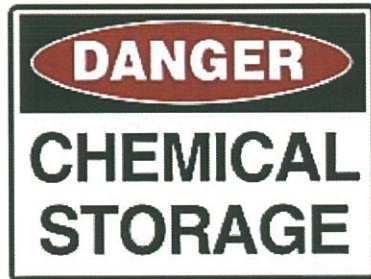


Fig TO5.4 Danger Placard

1. **TITLE**            **MATERIAL SAFETY DATA SHEETS (MSDS)**
  
2. **DATE ISSUED**   1 July 2005, ISSUE 1
  
3. **ABSTRACT**    Under the Occupational Health and Safety (Hazardous Substances) Regulations, manufacturers and importers are responsible for determining whether a substance they supply for use in a workplace is hazardous. If the substance is classified as hazardous, a **Material Safety Data Sheet (MSDS)** must be prepared and made available to purchasers of the substance.
  
4.                    The MSDS provides the information about the hazards (health effects) of the substance and how to use it safely. It also helps you to identify, assess and control risks associated with the use of the substance in your workplace.
  - 4.1                  An MSDS must contain the following information:
    - a) Date of preparation or review.
    - b) Manufacturer or importer details, including Australian address and contact telephone numbers.
    - c) Product name.
    - d) Chemical and physical properties of the substance.
    - e) Proportion (or proportion ranges) of the ingredients in the substance.
    - f) Health hazard information.
    - g) First aid information.
    - h) Precautions for safe use.
    - i) A statement that the substance is a hazardous substance.
  
  - 4.2                  You have a right to expect that the information contained in an MSDS is current, accurate and easily understood by a lay person. It should take into account all the normal uses of the substance. If you are not happy with the MSDS supplied, raise your concerns with the manufacturer or importer.
  
  - 4.3                  The Regulations also require you to obtain the most recent version of the MSDS on or before the first time the hazardous substance is supplied for use in your workplace. Only the MSDS prepared by the manufacturer or importer of the substance are acceptable. Generic or third party MSDS are not acceptable.
  
  - 4.4                  If an MSDS gets revised or updated (required every 5 years), the manufacturer or importer is required to supply the revised or updated MSDS on the next delivery of that hazardous substance.
  
  - 4.5                  Suppliers who are retailers or retail warehouse operators are not required to provide an MSDS for Hazardous Substances that are supplied in consumer packages. Therefore, if you purchase Hazardous Substances from a retailer, you need to obtain an MSDS from an upstream supplier such as the manufacturer or importer of the substance. (Note, the upstream suppliers contact details should be on the label.)

- 4.6 The MSDS must be readily accessible to any employee who could be exposed to a Hazardous Substance. Copies of the MSDS should be kept in a location convenient to the work area in which the substance is used. Copies should also be kept in a central and remote area from the storage of the hazardous substance in case of a spill etc. All employees likely to be exposed to a Hazardous Substance must know where to find the MSDS. They are also to receive information, instruction and training to ensure that they understand the purpose of the MSDS and can use it effectively.
- 4.7 You must not alter the information in an MSDS prepared by the manufacturer or importer. Additional information such as specific workplace information, must be appended to the MSDS and marked clearly that it is not part of the original MSDS.

**1. TITLE          SEPARATION DISTANCES****2. DATE ISSUED** 1 July 2005, ISSUE 1

**3. ABSTRACT** Regulations require that the risk to personnel, property or exposure to other Dangerous Goods is minimised by separation. Separation distances are influenced by a number of factors including the types and quantities of the Dangerous Goods, the use and processes applied to the Dangerous Goods in the work area and any controls in place to minimise the risks.

**4. SEPARATION**

**4.1** Separation can also be explained by some common sense approaches:

- a) Never store different chemicals together.
- b) Never mix chemicals.
- c) Always wear the appropriate Personal Protective Equipment.
- d) Always keep liquids away from dry chemicals.
- e) Always ventilate the storage areas.
- f) Always check where gases accumulate.
- g) Always check the MSDS for each chemical.

**4.2** There are a number of sources for information in regards to Separation Distances. The principle source of information is the Dangerous Goods Regulations of your State or Territory. Some States or Territories also have Codes of Practice that also describe Separation Distances.

**4.3** In addition, there are also relevant Australian Standards that describe Separation Distances such as:

- AS/NZS 2927:2001 The storage and handling of liquefied chlorine gas
- AS 4326 – 1995 The storage and handling of oxidizing agents
- AS 1894 – 1997 The storage and handling of non-flammable cryogenic and refrigerated liquids
- AS 4331 – 1995 The storage and handling of gases in cylinders
- AS 3780 – 1994 The storage and handling of corrosive substances

The information contained in these sources is quite different. For example in Western Australia, the Explosives and Dangerous Goods (Dangerous Goods Handling and Storage) Regulations 1992 describes specific distances whereas in Victoria, the Dangerous Goods (Storage and Handling) Regulations 2000 refer to the Australian Standards for the relevant Dangerous Good with the following clarification:

*"Distances given in the various Standards are designed to provide safety with most possible combinations of goods of the classes concerned. Because for example some Class 8 react dangerously with some Class 5.1, distances given assume that all goods of these classes are incompatible, even though this can be demonstrated to be false with some combinations.*

*Therefore, for many combinations lesser distances may be determined by risk assessment rather than by following minimum separation distances set out in Appendix 3 documents (list of relevant Australian Standards). For this to be effective, however, the assessment must be based on the specific hazards of the actual dangerous goods being stored and handled rather than on Class considerations only."*

**Note:** The information in this section is of a general nature for advice only and is taken from the various sources indicated above. For specific information, please refer to your relevant State or Territory Regulations.

## 5. DEFINITIONS

5.1 Australian Standard AS/NZS 2927:2001 The Storage and Handling of Liquefied Chlorine Gas defines a **Protected Place** as:

- a) "A dwelling, place of worship, public building, school or college, childcare facility, hospital, theatre, or any building or open area in which people are accustomed to assemble, whether within or outside the property boundary of the installation;
- b) A factory, workshop, office, store, warehouse, shop or building where people who are not associated with the operation of the chlorine installation are employed;
- c) A ship lying at permanent berthing facilities;
- d) Any storage facility for dangerous goods that exceeds minor storage quantities and is outside the property boundary of the installation."

5.2 Australian Standard AS/NZS 2927:2001 The Storage and Handling of Liquefied Chlorine Gas defines a **Public Place** as:

"Any place other than private property, open to the public, which the public has a right to use and which includes a public road. Private car parking areas are not considered to be public places".

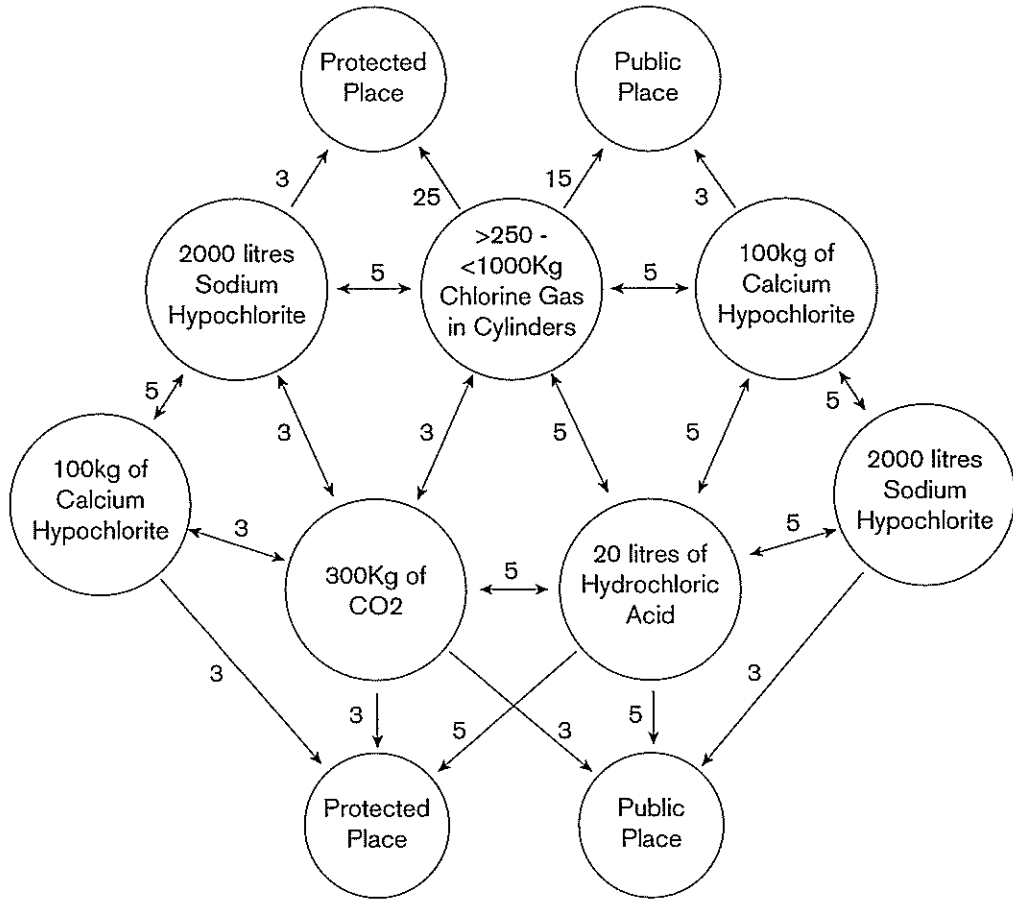


Fig TO7.1 Diagrammatic Representation of Separation Distances for a Typical Aquatic Centre. Distances are in (m) metres.



**Table TO7:1 Separation Distances**

All distances are in metres (m).

	Hypo	Dry Chlorine	Chlorine Gas	Hydro-chloric Acid	CO2	Protected Place	Public Place
<b>Hypo</b>	N/A	5	5	5	3	3	3
<b>Dry Chlorine</b>	5	N/A	3	5	3	3	3
<b>Chlorine Gas</b>	5	5	N/A	5	3	25	15
<b>Hydro-chloric Acid</b>	5	5	5	N/A	5	5	5
<b>CO2</b>	3	3	3	5	N/A	3	3
<b>Protected Place</b>	3	3	25	5	3	N/A	N/A
<b>Public Place</b>	3	3	15	5	3	N/A	N/A

For aquatic facilities using chlorine gas, the following also applies (from AS/NZS 2927:2001 The storage and handling of liquefied chlorine gas):

"From any swimming pool or area to which the public have access (e.g. dressing rooms, toilets, first aid rooms, club rooms, foyers, kiosks, grandstands) to

- (i) any opening in an installation where cylinders of chlorine are stored – (the separation distance is) at least 15m.
- (ii) any opening in an installation where drums or tanks of chlorine are stored – (the separation distance is) at least 25m."

**1. TITLE SPILL CONTAINMENT****2. DATE ISSUED** 1 July 2005, ISSUE 1**3. ABSTRACT** All places in which Dangerous Goods are stored must have a spill containment system that will eliminate any risk arising from any spill of the Dangerous Goods.**Fig TO8.1 Spill Container****4. SPILL CONTAINMENT**

- 4.1** The various Regulations and Codes of Practice for the Storage and Handling of Dangerous Goods state that you must provide spill containment that will eliminate the risk or reduce the risk so far as practicable from any spill or leak of solid or liquid Dangerous Goods / Hazardous Substances. This is required for every area where Dangerous Goods are stored and handled. All spillages or leaks of Dangerous Goods should be contained within the premises.
- 4.2** Factors that determine the extent of spill containment include:
- The nature of the Dangerous Good / Hazardous Substance – if solid, will it melt in a fire, if liquid, is it mobile or viscous?
  - The quantity of the Dangerous Goods / Hazardous Substances.
  - The size of the largest container or largest spill.
  - The consequences of a spill.
  - Whether or not it is necessary to provide for the management of firewater or other extinguishing materials for an incident.

- 4.3** Spill containment for liquids may be achieved by:
- a) Providing drains to a purpose built on-site catchment (for example, an interceptor or remote impounding basin).
  - b) Grading the surface so that all spills are contained by the contours.
  - c) Bunding the area to form a compound.
  - d) Double walled containers.
  - e) Enclosing a tank with a partial or full height bund.



**Figure TO8.2 Spill Container**

## 5. DESIGNING SPILL CONTAINMENT

- 5.1** You should ensure that:
- a) The spill containment system is impervious and can hold the Dangerous Goods until the spill is cleaned up.
  - b) The risks associated with the operation of the containment system are part of the design consideration.
  - c) The materials used in construction or for absorption are:
    - i. compatible with the Dangerous Goods and other materials in the vicinity,
    - ii. appropriate to avoid contamination of ground water or soil.
  - d) The capacity of any compound is sufficient for the volume of liquid (including a margin for fire water) to be contained.\*
  - e) Separate spill containment is provided where the Dangerous Goods that are not compatible are kept within the one storage area.
  - f) Absorbent materials, barriers and booms are provided where necessary to contain a spill outside areas where physical containment is provided or to assist in clean-up.
  - g) Contaminated firewater can be removed during an incident if needed.
  - h) Means are available for removing any rainwater that may accumulate in the area.
  - i) If the design and location of your spill containment system may affect emergency services operating procedures you should consult with the emergency services authority.
- 5.2** Specifically with regard to the aquatic industry:
- a) Bulk Hypo tanks must be installed within an impervious spill container.
  - b) Dry chemicals must be stored within a spill container.
  - c) Tubs or carboys of different chemical types must be stored within isolated spill containment zones.
  - d) The spill container should be capable of holding the capacity of the individual container plus 10 %.

1. TITLE CREST LOCUS LIMIT

2. DATE ISSUED 1 July 2005, ISSUE 1

3. ABSTRACT When installing a bulk tank facility, the spill containment perimeter must be calculated considering the capacity of the tank and the distance from the top edge of the tank. The perimeter distance allows for a jet of chemical spurting under pressure from the tank and estimates the maximum travel of the jet. This distance is called the crest locus limit.

4. CREST LOCUS LIMIT

4.1 The crest locus limit describes the minimum separation distance between a container and the edge of the spill container. This can be calculated using the trigonometric formula:

$$\tan \theta = 0.5$$

(Where  $\theta$  is a minimum of 26.5 degrees between the height of the container and the distance out to the spill container.)

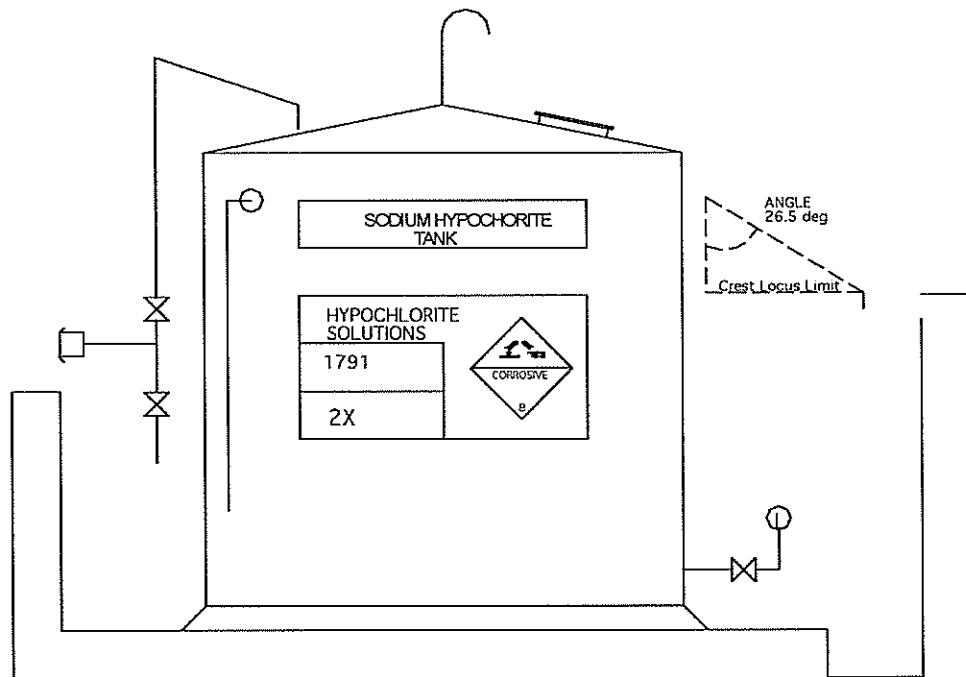


Fig TO9.1 Tank Layout

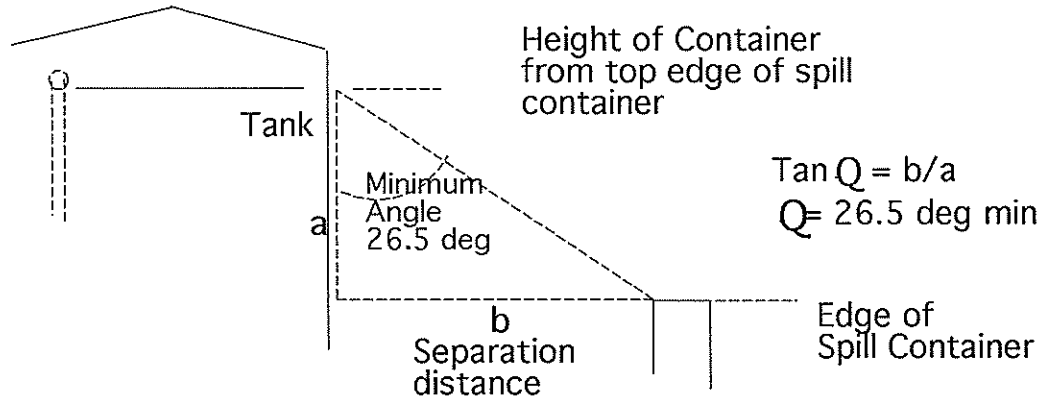


Fig TO9.2 Crest Locus Limit

5. BULK STORAGE SYSTEM

5.1 The bulk storage system must comply with Dangerous Goods regulations. Bulk chemical suppliers also produce guidelines for the customer to meet. Certain chemical suppliers will inspect facilities prior to delivery to ensure that their Occupational Health and Safety obligations to the drivers are met. Below is a diagram of those items that make up a typical installation.

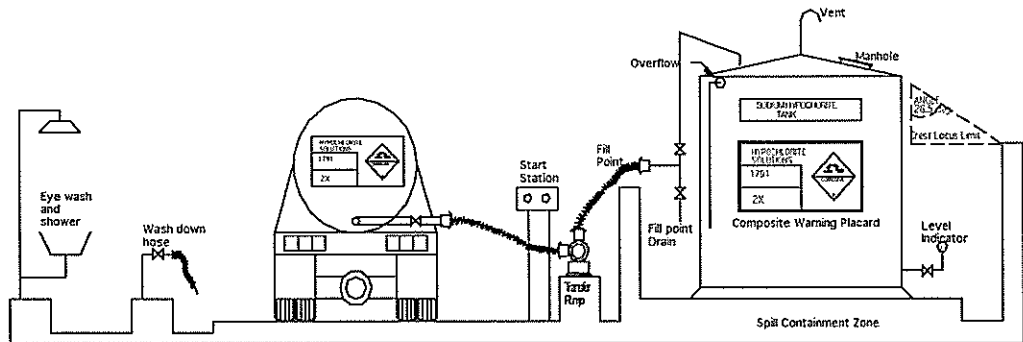


Fig TO9.3 Bulk Storage System

**1. TITLE OTHER SIGNAGE FOR PLANTROOMS****2. DATE ISSUED** 1 July 2005, ISSUE 1**3. ABSTRACT** There are requirements for signs in an aquatic centre's plant room in addition to the relevant HAZCHEM placarding. These include signs for Personal Protective Equipment (PPE), pipe markers and safety signs.**4. PERSONAL PROTECTIVE EQUIPMENT (PPE)**

**4.1** Under the various State and Territory Occupational Health and Safety and Dangerous Goods Acts and Regulations, an employer must provide Personal Protective Equipment (PPE) that is suitable for use with the Dangerous Goods and Hazardous Substances that are stored or handled at the workplace and for any other work practice. The employer is also required to ensure that the PPE is maintained in a clean and serviceable condition.

**4.2** The employer must provide suitable training for the employee in those work practices that involve Dangerous Goods and those that require the use of PPE. Part of this training must be the correct use of the PPE that is required for each and every work practice.

Examples of PPE that may be required include (but are not limited to):

- a) Gloves for protection against chemicals.
- b) Gloves for protection against heat.
- c) Eye Goggles.
- d) Face Shield.
- e) Dust Mask.
- f) Full Respiratory Mask.
- g) Ear Muffs.
- h) Safety Boots.
- i) Boots for protection against chemicals.
- j) Apron / Overalls.
- k) Hard Hat.

**4.3** The PPE should be stored, ready to be used, at a location where it is accessible to the employee before commencement of the required work. This generally entails that the PPE would be situated at the entrance to a plant room or just inside.

**5. PPE SIGNAGE**

**5.1** PPE signage needs to be displayed, promoting the use of PPE. This signage needs to be compliant with AS 1319 – 1994 Safety Signs for the Occupational Environment. The location of the signage should ensure that the sign is visible, all messages are legible and so that they will attract the attention of those concerned. This means that they should be located as close as practicable to the observer's line of sight. For a standing adult, this will be 5 degrees up or down from a point 1500mm above floor level, in front of the observer.

**5.2** The PPE signage should also be placed where it allows a person to put on and make use of the PPE before coming into contact with Dangerous Good that the PPE is designed to protect them against.

Table TO10.1 shows a selection of PPE signs that may be applicable at a commercial aquatic centre.

**Table TO10.1 PPE Symbols from AS 1319 – 1994 Safety Signs for the Occupational Environment**



Please refer to AS 1319 – 1994 Safety Signs for the Occupational Environment for the design specifics of these PPE signs.



**6. SAFETY SIGNS**

**6.1** Australian Standard AS 1319 – 1994 Safety Signs for the Occupational Environment provides examples of safety signs which may be applicable.

Table 10.2 shows two signs from AS 1319 that may be applicable in an aquatic industry setting.

**Table TO10.2 Prohibition Signage from AS 1319 – Safety Signs for the Occupational Environment**



No Smoking



Fire, naked flame and smoking prohibited

**6.2** Please refer to AS 1319 – 1994 Safety Signs for the Occupational Environment for design specifics for these Prohibition signs.

**6.3** To prevent misinterpretation of a sign, it is important that all signage does not have displayed near them any writing or other sign that contradicts, qualifies or distracts attention from the required sign or notice.

**7. RESTRICTED ACCESS**

**7.1** Under the provision of the various State and Territory Occupational Health and Safety Acts and Regulations, access to plant rooms, chemical stores and other possibly hazardous locations should be restricted to staff only. The signs should say “Staff Only” or “Restricted Access” and be compliant with AS 1319 – 1994 Safety Signs for the Occupational Environment.



1. TITLE COLOUR CODES FOR CHEMICALS

2. DATE ISSUED 1 July 2005, ISSUE 1

3. ABSTRACT Chemicals that are being transported via pipes, conduits or ducts, need to be easily and quickly identified. As they are no longer in their storage containers, they are no longer labelled for identification. Once a chemical is not identified, there exist risks in regards to handling and or usage of this chemical. To counteract this problem, all pipes etc that carry chemicals in a plant room must be clearly identified in accordance with AS 1345 Identification of the Contents of Pipes, Conduits and Ducts.

AS 1345 Identification of the Contents of Pipes, Conduits and Ducts introduces a system of colour coded labelling for pipes, conduits and ducts that contain chemicals.

4. BASE IDENTIFICATION COLOUR

4.1 The objective of the base identification colour is to provide immediate information as to the contents of the pipe, conduit or duct in broad terms.

Table TO11.1 Pipe Identification Colours and their Uses

Colour name and basic identification	Applications	Exclusions
Green – Water	<ul style="list-style-type: none"> <li>– Drinking water</li> <li>– Waste water dangerously polluted</li> <li>– Cooling water, including sea water</li> <li>– Storm water</li> <li>– Hydraulic power supply</li> <li>– Recycled water</li> </ul>	Sewage, and other waste water
Silver – Grey – Steam	<ul style="list-style-type: none"> <li>– Live steam</li> <li>– Process steam</li> <li>– Exhaust steam</li> <li>– Space heating steam</li> </ul>	
Brown – Oils, flammable and combustible liquids	<ul style="list-style-type: none"> <li>– Fuel and lubricating oils</li> <li>– Animal and vegetable oils for food processing</li> <li>– Petrol, diesel and other light fraction fuels</li> <li>– Other flammable or combustible liquid substances</li> </ul>	Liquefied gases under pressure

Colour name and basic identification	Applications	Exclusions
Yellow Ochre – Gases	<ul style="list-style-type: none"> <li>- Fuel gases</li> <li>- Process gases</li> <li>- Liquefied gases under pressure</li> <li>- Pneumatic transport of particulate solids</li> <li>- Exhaust gases and fumes</li> <li>- Medical gases</li> </ul>	Air Highly acid or alkaline gases.
Violet – Acids and alkalis	<ul style="list-style-type: none"> <li>- All corrosive liquids and gases</li> </ul>	
Light Blue – Air	<ul style="list-style-type: none"> <li>- Compressed air</li> <li>- Instrument air</li> <li>- Vacuum</li> <li>- Ventilation</li> <li>- Pneumatic conveyor</li> </ul>	
Black – Other liquids	<ul style="list-style-type: none"> <li>- Chemical mixtures in water or organic solvent</li> <li>- Liquid foodstuffs</li> <li>- Sewage, organic waste</li> <li>- Chemical and process wastes</li> </ul>	Corrosive materials Flammable or combustible material
Red – Fire services	<ul style="list-style-type: none"> <li>- Dedicated water, foam, other fire extinguishing supply lines</li> </ul>	Electrical supply Communication circuits
Orange – Electrical power	<ul style="list-style-type: none"> <li>- Electrical supply circuits</li> </ul>	Extra-low voltage circuits
White – Communications	<ul style="list-style-type: none"> <li>- Telephone and other communication circuits</li> <li>- Extra-low voltage supply</li> </ul>	

Table TO11.2 Pipe Colour Codes specific to the aquatics industry

Chemical	Colour Code
Sodium Hypochlorite	Violet
Water	Green
CO2	Yellow
Chlorine Gas	Violet
Ozone Gas	Violet

1. TITLE PIPE MARKERS

2. DATE ISSUED 1 July 2005, ISSUE 1

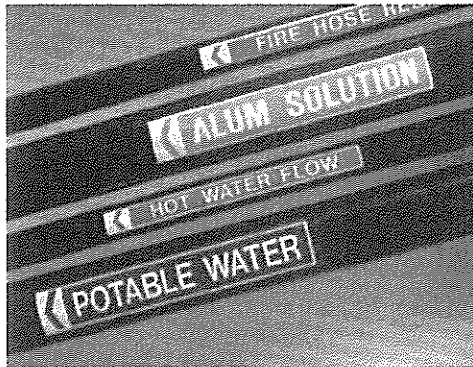
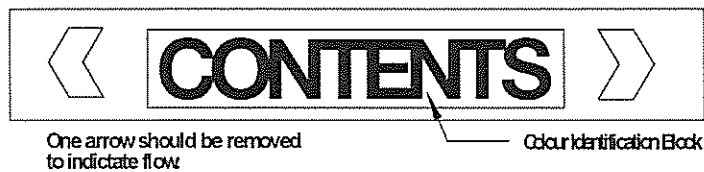


FIG TO12.1 PIPE MARKERS

3. PIPE MARKERS

- 3.1 A pipe marker can be either a rectangular label which can be attached to the pipe, or information sign-written onto the pipe. The words shall indicate the contents of the pipe and if required, a particular hazard associated with that pipe that needs to be in black or white lettering.
- 3.2 The background colour, in a block large enough to contain the lettering should be the base identification colour for the contents of the pipe, and should have a contrasting border.
- 3.3 The marker should also contain a chevron or an arrow to indicate flow direction if applicable.
- 3.4 For design, colour and sizing specifications and location criteria, please refer to AS 1345 Identification of the contents of pipes, conduits and ducts.



**Typical Pipe Marker**

Fig TO12.2 Pipe Marker Layout.

(Chevrons and colour identification block are unique to product type.)

## GLOSSARY

### DANGEROUS GOODS

Dangerous Goods are those substances that may be corrosive, flammable, explosive, toxic, oxidising or water reactive.

Dangerous Goods are classified as those which will have an immediate physical or chemical affect on property, people or the environment by fire, explosion, corrosion, or poisoning.

### GUIDELINE

A guideline is a voluntary standard.

### HAZARDOUS SUBSTANCE

Hazardous Substances are those substances that may have a health effect on those who deal with them.

A Hazardous Substance may also be classified as a Dangerous Good.

### PACKING GROUP

Dangerous Goods (other than Class 1, 2 and 7) are assigned to Packing Groups. The groups are classified according to the degree of risk the goods present during transport.

- Great Danger                      Packing Group 1
- Medium Danger                    Packing Group 2
- Minor Danger                      Packing Group 3

Assignment to a Packing Group will depend on the class and the Subsidiary Risks of the goods and on the nature of the physical hazard presented by the goods.

If the goods present multiple hazards then they are assigned the category appropriate to the most severe hazard.

Dangerous Goods are assigned to a Packing Group in accordance to regulation 2.5 in the Australian Dangerous Goods Regulations.

### PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment (PPE) such as gloves, goggles and face mask, that are designed to protect an individual when they are working in an hazardous environment.

## GLOSSARY

**PROTECTED PLACE** (as defined by AS/NZS 2927:2001 The storage and handling of liquefied chlorine gas)

- A dwelling, place of worship, public building, school or college, childcare facility, hospital, theatre, or any building or open area in which people are accustomed to assemble, whether within or outside the property boundary of the installation.
- A factory, workshop, office, store, warehouse, shop or building where people who are not associated with the operation of the chlorine installation are employed.
- A ship lying at permanent berthing facilities.
- Any storage facility for Dangerous Goods that exceeds minor storage quantities and is outside the property boundary of the installation.

**PUBLIC PLACE** (as defined by AS/NZS 2927:2001 The storage and handling of liquefied chlorine gas)

Any place other than private property, open to the public, which the public has a right to use and which includes a public road. Private car parking areas are not considered to be public places.

## RISK MANAGEMENT

The identification and management of potential and existing hazards.

## SEPARATION DISTANCES

The minimum distance required between stores of two different chemicals or between a store of a chemical and a protected or public place.

## REFERENCES / BIBLIOGRAPHY

### REFERENCES SPECIFIC TO THE AQUATIC ENVIRONMENT.

References may be sourced from a number of areas. These may include

- Your Local Government Health Departments
- State and Territory Department of Human Services
- Victorian Aquatic Industry Council (VAIC)
- Royal Life Saving Society Australia (Guidelines for Safe Pool Operations)
- Chemical Suppliers:
  - Orica
  - Spectrum Chemicals
  - BOC Gases
  - Air Liquide
  - Local Retail Outlets
- Various State and Territory Workcover Authorities
- Environmental Protection Authority (EPA)
- Equipment Manufacturer's Guidelines

### GOVERNMENT

#### Federal

- Australian Dangerous Goods Code 1998
- National Occupational Health & Safety Commission: National Standard – Storage and Handling of Workplace Dangerous Goods
- National Occupational Health & Safety Commission: National Code of Practice – Storage and Handling of Workplace Dangerous Goods

#### Australian Capital Territory

- Dangerous Goods Act 1975
- Dangerous Goods Regulations 1978
- Occupational Health and Safety Act 1989

#### New South Wales

- Dangerous Goods (General) Regulations 1999
- Occupational Health & Safety Regulation 2001

#### Northern Territory

- Dangerous Goods Regulations 2003
- Work Health (Occupational Health and Safety) Regulations 2002

## REFERENCES / BIBLIOGRAPHY

### Queensland

- Dangerous Goods Safety Management Regulation 2001
- Workplace Health and Safety Act 1995
- Workplace Health and Safety (Miscellaneous) Regulation 1995
- Workplace Health and Safety Regulation 1997
- Workplace Health & Safety Queensland Advisory Standard 2003 for Hazardous Substances

### South Australia

- Dangerous Substances Act 1979
- Occupational Health, Safety and Welfare Act 1986
- Code of Practice for the Control of Workplace Hazardous Substances

### Tasmania

- Dangerous Goods Act 1998
- Dangerous Goods (General) Regulations 1998
- Workplace Health and Safety Act 1995
- Workplace Health and Safety Regulations 1998
- Hazardous Materials Emergency Manual
- A Guide to First Aid in the Workplace

### Victoria

- Occupational Health and Safety Act 1985
- Occupational Health and Safety Hazardous Substances Regulations 1999
- Code of Practice for Hazardous Substances No 24, June 2000
- Code of Practice for First Aid in the Workplace No 18, June 1995
- Dangerous Goods Act 2000
- Dangerous Goods (Storage and Handling) Regulations 2000
- Code of Practice for the Storage and Handling of Dangerous Goods No 27, December 2000
- Health (Infectious Diseases) Regulations 2001
- Department of Human Services (Victoria) ~ Pool Operators Handbook

## REFERENCES / BIBLIOGRAPHY

### Western Australia

- Explosives and Dangerous Goods (Dangerous Goods Handling and Storage) Regulations 1992
- Guidelines for the Preparation of an Emergency Plan and Manifests
- Occupational Safety and Health Regulations 1996
- Guidance Note – General Duty of Care in Western Australian Workplaces  
(Worksafe Western Australia Commission)
- Guidance Note – Storage of Dangerous Goods Placarding of Stores and Premises  
(Department of Industry and Resources)
- Guidance Note – Storage of Dangerous Goods – General Requirements for Licensed Premises  
(Department of Industry and Resources)
- Guidance Note – Storage of Dangerous Goods – General Requirements for Premises Exempt from Licensing (Department of Industry and Resources)

### AUSTRALIAN STANDARDS

AS 1319 – 1994	Safety signs for the occupational environment
AS 1345 – 1995	Identification of the contents of pipes, conduits and ducts
AS 1894 – 1997	The storage and handling of non-flammable cryogenic and refrigerated liquids
AS/NZS 2927:2001	The storage and handling of liquefied chlorine gas
AS 3633 – 1989	Private Swimming Pool – Water Quality
AS 3780 – 1994	The storage and handling of corrosive substances
AS 4326 – 1995	The storage and handling of oxidizing agents
AS 4332 – 1995	Storage and handling of gases in cylinders
AS/NZS 4360 – 2004	Risk management

### OTHER REFERENCE MATERIAL

- Seton Australia Trade Catalogue July – December 2003
- Spill Station Australia Catalogue, Reed Business Information November 2002
- The Materials Handling Guide, Reed Business Information November 2002
- Orica Material Safety Data Sheet – Calcium hypochlorite (issue date 01.10.1998)
- Orica Bulk Installation Full Safety Checklist Generic 20/09/2000



# SAMPLE MANIFEST FORM

## DANGEROUS GOODS AND COMBUSTIBLE LIQUIDS MANIFEST

OCCUPIER

ADDRESS OF PREMISES

DATE OF PREPARATION  /  /  SITE PLAN NUMBER

Name	Position	Telephone
		AH
		BH
		MOB
		AH
		BH
		MOB
		AH
		BH
		MOB
		AH
		BH
		MOB

SAMPLE

### BULK STORAGE DETAIL

Tank ID No	Dangerous Goods					Tank Detail	
	Name	Class	Sub Risks	UN No	Package Group	Capacity	Location

### PACKAGE STORAGE DETAILS

Storage Area	Dangerous Goods					Tank Detail	
	Name	Class	Sub Risks	UN No	Package Group	Average Quantity	Location

## SAMPLE MATERIAL SAFETY DATA SHEET

This Sample Material Safety Data Sheet (MSDS) is based on a MSDS supplied by Orica Chemicals (Orica Material Safety Data Sheet – Calcium hypochlorite (issue date 01.10.1998)

### MATERIAL SAFETY DATA SHEET

#### A. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND THE COMPANY / UNDERTAKING

**Product Name:** Calcium hypochlorite – hydrated  
**Synonyms:** calcium hypochlorite – hydrated, Dry chlorine, Cal hypo, Calcium oxychloride  
**CAS-No.:** 7778-54-3  
**Molecular Formula:** Ca(OCl)<sub>2</sub>  
**Supplier:**  
**ACN:**  
**Street Address:**  
**Telephone:**  
**Facsimile:**  
**Emergency Telephone Number:**

#### B. COMPOSITION / INFORMATION ON INGREDIENTS

**Recommended Use:** Swimming pool chemical, algicide and bactericide  
**Appearance:** White granular solid with a chlorine odour  
Calcium hypochlorite (hydrated, 70% available chlorine)

#### C. HAZARDS IDENTIFICATION

Hazardous according to Worksafe Australia

**Hazard Category:** C Corrosive

##### R-phrases(s)

R8 Contact with combustible material may cause fire  
R31 Contact with acids liberates toxic gas  
R34 Causes burns  
R41 Risk of serious damage to eyes

Classified as Dangerous Goods for the purpose of transport by road or rail. Refer to relevant regulations for storage and transport requirements

**Class:** 5.1 Oxidizing Agent

**Poisons Schedule (Aust) / Toxic substance (NZ):** S5

This material is a Scheduled Poison S5 and must be stored, maintained and used in accordance with the relevant regulations.

## SAMPLE MATERIAL SAFETY DATA SHEET

### D. FIRST AID MEASURES

Poison Information Centres in each State capital city can provide additional assistance for scheduled poisons.

**Ingestion:** Immediately rinse mouth with water. Give water to drink. Do not induce vomiting. Seek immediate medical assistance.

**Eye contact:** immediately irrigate with copious quantities of water for at least 15 minutes. Eyelids to be held open. Remove clothing if contaminated and wash skin. Urgently seek medical assistance. Transport to hospital or medical centre.

**Skin contact:** immediately wash contaminated skin with plenty of water. Remove contaminated clothing and wash before re-use. If swelling, redness, blistering, or irritation occurs seek medical advice. For skin burns, immediately flood burnt area with plenty of water and cover with a clean, dry dressing. Seek immediate medical advice.

**Inhalation:** remove victim from exposure – avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If breathing laboured and patient cyanotic (blue), ensure airways are clear and have qualified person give oxygen through a face mask. If breathing has stopped apply artificial respiration at once. In event of cardiac rest, apply external cardiac massage. Seek medical advice.

**Notes to Physician:** Treat symptomatically. Delayed effects from exposure to chlorine (decomposition product) can induce shortness of breath, headaches, pulmonary oedema and pneumonia.

### E. FIRE FIGHTING MEASURES

**Specific hazards:** non combustible, but will support the combustion of other material.

**Fire fighting further advice:** powerful oxidising agent. Not combustible, but will support combustion of other materials. Decomposes violently upon heating, liberating oxygen, hence “fuelling” any fire, and toxic gas. In case of fire, area must be evacuated and specialist fire fighters called. Only large quantities of water should be used as an extinguishing agent. If excess water is not available do not attempt to extinguish the fire; use available water to prevent the spread of fire to adjacent property. Fire fighters to wear self contained breathing apparatus if risk of exposure to products of combustion and decomposition. A fire in the vicinity of calcium hypochlorite should be extinguished in the most practical manner but avoid contaminating the calcium hypochlorite with fire fighting agent, including water (decomposes upon contact with water evolving toxic chlorine gas). Once fire is extinguished wash area down with excess water ensuring any traces of calcium hypochlorite are washed away. Ensure drains are not blocked with solid material. Maintenance of excess water during cleanup is essential. Any contaminated combustible material should be removed to a safe open area for controlled burning or further drenching with water to ensure complete decontamination before disposal.

**Suitable extinguishing media:** Water spray or fog (large quantities necessary).

# SAMPLE MATERIAL SAFETY DATA SHEET

## F. ACCIDENTAL RELEASE MEASURES

Wear protective equipment to prevent skin and eye contamination and inhalation of dust or vapours of decomposition. Work up wind. Avoid contact with moisture or any other incompatible materials. Sweep up, avoiding generation of dust, then immediately spread as a thin layer in an uncontaminated, dry, open area to reduce the possibility of local hot spots forming. Gradually hose to drain ensuring large dilution. Do not store or transport swept up material. Do not return spilled material to container. Do not add small amounts of water to material.

Where a spill has occurred in a confined space or an unventilated building / enclosure and the material is damp and evolving chlorine, the rate of chlorine evolution can be reduced by covering the thinly spread solid with soda ash.

For large spills notify Emergency Services.

## G. HANDLING AND STORAGE

**Storage:** Store in a cool, dry place and out of direct sunlight. Store away from combustible materials, foodstuffs, and sources of heat. Keep dry - reacts with water, may lead to drum rupture. Keep containers closed at all times - check regularly for spills. Ensure that pallets are clean and free from oil. Do not return spilled material to original container. Treat as described in "Spills".

This material is a Scheduled Poison S5 and must be stored, maintained and used in accordance with the relevant regulations.

## H. EXPOSURE CONTROLS / PERSONAL PROTECTION

### National occupational exposure limits

No value assigned for this specific material by the National Occupational Health and Safety Commission (Worksafe Australia).

However, exposure standard for decomposition product:

Category	TWA	Notices	Carcinogen
Chlorine	1ppm (3mg/m3)		
	Peak Limitation	-	-

As published by the National Occupational Health and Safety Commission (Worksafe Australia).

Peak Limitation - a ceiling concentration which should not be exceeded over a measurement period which should be as short as possible but not exceeding 15 minutes.

Exposure Standard (TWA) is the time weighted average airborne concentration over an eight hour working day, for a five day working week over an entire working life. According to current knowledge this concentration should neither impair the health of, nor cause undue discomfort to, nearly all workers.

## SAMPLE MATERIAL SAFETY DATA SHEET

This Exposure Standard is a guide to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. This Exposure Standard should not be used as a fine dividing line between safe and dangerous concentrations of this chemical. It is not a measure of relative toxicity.

Odour threshold for Chlorine: 0.5-2ppm for previously unexposed individuals.

**Engineering measures:** Use in well ventilated area. Avoid generating and inhaling dusts. Keep containers closed when not in use.

**Personal protective equipment:** Overalls, safety shoes, chemical goggles, gloves, dust mask.

Avoid skin and eye contact. Wear overalls, chemical goggles and impervious gloves. Avoid generating and inhaling dusts. If dust exists, wear dust mask / respirator meeting the requirements of AS 1715 and AS 1716. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using as it constitutes a fire hazard.

### I. PHYSICAL AND CHEMICAL PROPERTIES

**Form / Colour / Odour:** White granular solid with a chlorine odour.

**Solubility:** Soluble in water

Specific Gravity (20C):	2.1	Melting Point (C):	N Av
Rel. Vapour Density (air=1):	N Av	Boiling Point (C):	N App
Vapour Pressure (20C):	N Av	Decomp. Point (C):	180
Flash Point (C):	N Av	Sublimation Point:	N App
Flammability Limits (%):	N Av	pH (5% aq sol):	11.5
Autoignition Temp (C):	N Av	Viscosity:	N App
%Volatile by volume:	Nil	Evaporation Rate:	N App
Solubility in water (g/l):	N Av		

N Av = Not Available

N App = Not Applicable

### J. STABILITY AND REACTIVITY

**Stability:** Oxidising agent. Will react with organic materials. Can readily ignite combustible materials. Decomposition can be rapid and violent upon contact with incompatible materials and on heating. Decomposes in water evolving chlorine gas. Corrosive to most metals in the presence of moisture.

## SAMPLE MATERIAL SAFETY DATA SHEET

### K. TOXICOLOGICAL INFORMATION

**Main Symptoms:** No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms that may arise if the product is mishandled are:

**Ingestion:** Swallowing can result in gastrointestinal corrosion causing severe pain, nausea and vomiting. Large doses may be fatal.

**Eye contact:** A severe eye irritant. Contamination of the eyes can result in permanent injury. Corrosive to eyes; contact can cause corneal burns.

**Skin contact:** Contact with skin will result in severe irritation. Corrosive to skin – may cause skin burns.

**Inhalation:** Dusts and chlorine (decomposition product) are corrosive to the respiratory tract. Confusion, pulmonary oedema, and collapse can result. Chlorine, evolved from decomposition when wet, is a severe respiratory irritant, corrosive and highly toxic. Delayed effects can include shortness of breath, headache, pulmonary oedema and pneumonia.

**Long term effects:** No information available for product.

**Acute toxicity / Chronic toxicity:** Ora. LD50 (rat): 850mg/kg (1)

### L. ECOLOGICAL INFORMATION

Avoid contaminating waterways

### M. DISPOSAL CONSIDERATIONS

Wash to drain with large quantities as described in "Spills". Do not dispose of at any waste site without first referring to State Land Waste Management Authority. Empty containers must be decontaminated by thoroughly rinsing with water.

## SAMPLE MATERIAL SAFETY DATA SHEET

### N. TRANSPORT INFORMATION

Classified as Dangerous Goods for the purpose of transport by road or rail. Refer to relevant regulations for storage and transport requirements.

**UN-No:** 2880  
**Class:** 5.1 Oxidizing Agent  
**Hazchem Code:** 2W  
**EPG:** 5.1.004  
**Packing Group:** Packing Group 2

**Proper Shipping Name:** Calcium Hypochlorite, Hydrated

**Segregation Dangerous Goods:** Not to be loaded with explosives (class 1), flammable gases (class 2.1), poisonous gases (class 2.3), flammable liquids (class 3), flammable solids (class 4.1), spontaneously combustible substances (class 4.2), dangerous when wet substances (class 4.3), organic peroxides (class 5.2), poisonous substances (class 6), radioactive substances (class 7), corrosives (class 8), miscellaneous dangerous substances (class 9), fire risk substances other than dangerous goods, however exemptions may apply.

### O. REGULATORY INFORMATION

Hazardous according to criteria of Worksafe Australia.

**Hazard Category:** C Corrosive

#### R-phrase(s)

R8 Contact with combustible material may cause fire.  
R31 Contact with acids liberates toxic gas.  
R34 Causes burns.  
R41 Risk of serious damage to eyes.

#### S-phrase(s)

S2 Keep out of reach of children  
S26 In case of contact with eye, rinse immediately with plenty of water and seek medical advice.  
S43 In case of fire, use large quantities of water.

**Poisons Schedule (Aust) / Toxic Substance (NZ):**S5

# BULK STORAGE FULL SAFETY CHECKLIST

This has been adapted from the Orica Bulk Installation Full Safety Checklist Generic 20/09/2000

## BULK INSTALLATION – FULL SAFETY CHECKLIST

Customer Details:

Office Details:

Contact Name:

Account Manager:

Contact Phone Number:

Inspected By:

Location:

Audit date:

Business:

Status:

State:

Next Audit Date:

Product Detail:

Revised Audit Date:

Tank Capacity:

Tank ID:

Tank Material:

**Note :** High Priority items are essential for safe operation  
Medium Priority items are critical for overall safe operation, regulatory compliance or environmental protection.

Item No	Tank	Yes	No	Priority	Actions/Comments
1	Is the storage system included on a current dangerous goods license?	<input type="checkbox"/>	<input type="checkbox"/>	High	
2	Is the tank located in a bund?	<input type="checkbox"/>	<input type="checkbox"/>	High	
3	Is the tank construction material suitable for the product?	<input type="checkbox"/>	<input type="checkbox"/>	High	
4	Is the level indicator visible from the loading point?	<input type="checkbox"/>	<input type="checkbox"/>	High	
5	Is a level indicator showing the maximum fill level installed?	<input type="checkbox"/>	<input type="checkbox"/>	High	
6	Is a high alarm installed and tested regularly?	<input type="checkbox"/>	<input type="checkbox"/>	High	
7	Is the high alarm independent of the level indicator?	<input type="checkbox"/>	<input type="checkbox"/>	High	
8	Is a vent installed on the tank (50mm)?	<input type="checkbox"/>	<input type="checkbox"/>	High	
9	Is an over flow installed on the tank (80mm)?	<input type="checkbox"/>	<input type="checkbox"/>	Medium	
10	Is the overflow directed into the bund where it can be seen by the driver during unloading?	<input type="checkbox"/>	<input type="checkbox"/>	High	
11	Is the overflow and vent connected to a lute scrubber (if applicable)?	<input type="checkbox"/>	<input type="checkbox"/>	High	
12	Does the tank appear to be in sound condition, (no leaks corrosion, bulging)?	<input type="checkbox"/>	<input type="checkbox"/>	High	
13	Is the bund and lining of suitable material?	<input type="checkbox"/>	<input type="checkbox"/>	Medium	
14	Is the bund in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	High	
15	Does the tank have appropriate warning signage and identification?	<input type="checkbox"/>	<input type="checkbox"/>	High	



## BULK STORAGE FULL SAFETY CHECKLIST

Item	Pipework and Fittings	Yes	No	Priority	Actions/Comments
1	Is the Pipework construction material suitable for the product?	<input type="checkbox"/>	<input type="checkbox"/>	High	
2	Is the filling point and Pipework clearly and unambiguously labelled?	<input type="checkbox"/>	<input type="checkbox"/>	High	
3	Is the tank filling isolation valve easily accessible and unobstructed?	<input type="checkbox"/>	<input type="checkbox"/>	Medium	
4	Is the size and type of tanker coupling appropriate?	<input type="checkbox"/>	<input type="checkbox"/>	High	
5	Is the delivery line fitted with a drain valve and is the valve easily accessible and unobstructed?	<input type="checkbox"/>	<input type="checkbox"/>	High	
6	Does the delivery line drain valve have a visible outlet?	<input type="checkbox"/>	<input type="checkbox"/>	High	
7	Do the Pipework and fittings appear to be in sound condition?	<input type="checkbox"/>	<input type="checkbox"/>	High	
8	Are the Pipework and fittings properly supported?	<input type="checkbox"/>	<input type="checkbox"/>	High	

Item	Customer's Pump (if applicable)	Yes	No	Priority	Actions/Comments
1	Is the pump located outside the tank bund or above the bund wall level or protected from being made inoperative by a spill?	<input type="checkbox"/>	<input type="checkbox"/>	Medium	
2	Is the pump stop/start switch easily accessible and unobstructed?	<input type="checkbox"/>	<input type="checkbox"/>	High	
3	Is emergency shutoff of power to pump provided?	<input type="checkbox"/>	<input type="checkbox"/>	High	
4	Is pump free of leaks and in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	Medium	

Item	Tanker Pump Connection (if applicable)	Yes	No	Priority	Actions/Comments
1	Is the power supply socket suitable for tanker requirements?	<input type="checkbox"/>	<input type="checkbox"/>	High	
2	Is the power supply socket appropriately labelled and within 7 meters of the hook up point?	<input type="checkbox"/>	<input type="checkbox"/>	High	
3	Can the power supply be easily isolated and does it have an earth leakage device?	<input type="checkbox"/>	<input type="checkbox"/>	Medium	
4	Does the power supply socket appear to be in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	High	

## BULK STORAGE FULL SAFETY CHECKLIST

Item	Safety	Yes	No	Priority	Actions/Comments
1	Are drivers aware and trained in site emergency procedures?	<input type="checkbox"/>	<input type="checkbox"/>	High	
2	Is there a safety shower/eyewash station located within 2 – 7 meters of the hook up point? Does it work?	<input type="checkbox"/>	<input type="checkbox"/>	High	
3	Is there a water hose located within 2 – 7 meters of the hook up point? Does it work?	<input type="checkbox"/>	<input type="checkbox"/>	Medium	
4	Are the correct Hazchem Signs in position?	<input type="checkbox"/>	<input type="checkbox"/>	High	
5	Are there other chemicals stored in the same bund? Are they compatible?	<input type="checkbox"/>	<input type="checkbox"/>	Medium	

Item	Access	Yes	No	Priority	Actions/Comments
1	Is discharge area and access road free of obstruction?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Medium	
2	Is tanker inside spill collection compound when unloading?	<input type="checkbox"/>	<input type="checkbox"/>	Medium	
3	Are there provisions to contain spillage from filling hoses/point?	<input type="checkbox"/>	<input type="checkbox"/>	High	

Item	Unloading	Yes	No	Priority	Actions/Comments
1	Is the authority to unload always signed prior to unloading?	<input type="checkbox"/>	<input type="checkbox"/>	High	
2	Is the tanker hookup always carried out by the driver?	<input type="checkbox"/>	<input type="checkbox"/>	High	
3	Are there provisions to contain spillage from the hoses?	<input type="checkbox"/>	<input type="checkbox"/>	High	

Other Comments:

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**1. TITLE**            **EMPLOYEE AWARENESS - FIRST AID**

**2. DATE ISSUED** 1 July 1996, ISSUE 3

**3. PURPOSE**        To establish a minimum standard of training in employee awareness of First Aid at swimming pools.

**4. DESCRIPTION**

**4.1**                **Initial Instruction**

Initial theoretical and practical instruction should be provided to all employees and responsible persons (refer also Guideline LP1) in the nature of First Aid facilities in the workplace, the location of First Aid kits, the availability of trained First Aiders and procedures to be followed when First Aid is required when:

- an employee first becomes employed
- there is a change in the nature and type of duties performed and
- thereafter at regular intervals.

**4.2**                **Hazard Advice**

- (a) All employees should be advised and kept aware of any hazards particular to the workplace, in addition to any general hazard awareness advice.
- (b) Any hazard should be isolated and a hazard report subsequently prepared in accordance with established procedures.

**1. TITLE**            **STANDARDS OF TRAINING FOR FIRST AIDERS**

**2. DATE ISSUED** 1 July 1996, ISSUE 3

**3. PURPOSE**        To establish minimum standards of training for First Aiders at swimming pools.

**4. DESCRIPTION**

**4.1**            **Basic Level**

All staff should hold an appropriate and recognised First Aid Certificate as required by relevant State and Territory legislation.

**4.2**            For all lifeguards the minimum standard is The RLSSA Pool Lifeguard Award and Resuscitation Award.

**4.3**            **Advanced Level**

(a) For those responsible for a First Aid room at public swimming pools which are capable of catering for 300 or more people at one time an appropriate Workplace First Aid Certificate is recommended.

(b) For large swimming pools or multi - facility aquatic centres a higher level First Aid Certificate should be held.

**4.4**            **Currency**

All the awards should remain current according to the policy of the accrediting organisation and, where appropriate, The Australian Resuscitation Council (ARC).

**1. TITLE           CONTENT OF FIRST AID ROOMS****2. DATE ISSUED** 1 September 1999, ISSUE 4**3. PURPOSE**     To establish a list of contents for the First Aid room at an aquatic facility.**4. DESCRIPTION****4.1               Fittings and Equipment**

Any room used as a First Aid Room should provide the following:

- (a) A removable screen or curtain which protects the privacy of the casualty.
- (b) Medical examination couch with blankets and pillows.
- (c) Two chairs.
- (d) Stretcher.
- (e) Access to a Spineboard and set of rigid extrication (cervical) collars. This equipment may be located in the First Aid room or on the poolside.
- (f) Access to a container for the collection and subsequent disposal of soiled medical items used in First Aid.
- (g) Sharps Container for collection of any dangerous sharps, eg, syringes.
- (h) Access to Oxygen Equipment. Portable oxygen equipment may be located in the First Aid Room or on the poolside.
- (i) Soap and nail brush.

**4.2               Storage of Medication**

Separate lockable storage facilities should be provided for:

- (a) Such medication as may be used by suitably qualified First Aiders
- (b) Items used for external wound treatment.

**4.4               First Aid Kit - Container****4.3.1           Size of the First Aid Kit**

- (a) The Kit should be in a solid, sturdy and dust-proof container.
- (b) The Kit should be large enough to adequately house the contents of the Kit.
- (c) If any modules are to be included, the Kits should be large enough to hold them, preferably in separate compartments.

**4.3.2**           The Kit should have a white cross on a green background prominently displayed on the outside.**4.3.3**           The Kit should not be locked.**4.3.4**           At least one additional kit, which is portable, should be provided for use at the site of a casualty. Larger facilities should provide several portable kits at strategic locations, which allow speedy access.

#### 4.4

#### First Aid Kit - Contents

(a) First Aid Rooms should have a First Aid Kit with the following contents:

- Emergency services telephone numbers and addresses
- Scissors (1)
- Disposable latex gloves (1 Box)
- Triangular Bandages (2)
- Sterile Eye Pads (4)
- Safety Pins (20)
- Adhesive Tape (1 Roll)
- Sterile coverings for serious wounds (15)
- Heavy Crepe Bandage (1)
- Burns Module (1)
- Eye Module (1)
- Un-medicated wound dressing (Medium) (Large) (4 of each)
- Gauze pieces, sterile 7.5 x 7.5 cm (2 Packets)
- Individually wrapped sterile adhesive dressing (1 Pack)
- Adhesive dressing strips (individually wrapped) (100)
- Basic First Aid Notes
- Liquid Skin Antiseptic
- Tweezers, Splinter Forceps
- Clinical Thermometer (1)
- Ice Packs (2)
- Sterile Wound closures (1 Pack)

(b) These items are considered the minimum requirements for a basic occupational First Aid kit. Additional items appropriate to the workplace maybe available in the First Aid Room, provided personnel expected to use them understand their use.

Note: Recommend that expiry dates and stock levels should be assessed on a regular basis

#### 4.5

#### Recommended Optional Additional Items

The following items are recommended:

- Dressing forceps 125mm minimum (1 pair)
- Kidney tray, stainless steal, 17cm (1)
- Disposable drinking vessels, 200ml (20)
- Clinical thermometer (1)
- Torch, pocket size (1)
- Soap and nail brush (1)
- Paper towel and dispenser (1)
- Clean garments for use by First Aiders
- Sunscreen cream
- Towels
- Material Safety Data Sheets for those chemicals in use at the centre.

Note: Recommend that expiry dates and stock levels should be assessed on a regular basis.

## 5. REFERENCES

Guideline FA3, Design of First Aid Rooms

Health and Safety Authority, Victoria (1995) Code of Practice: First Aid in the Workplace. Melbourne:

Health and Safety Authority, Victoria.

UK Sports Council Technical Unit for Sport (1991) Designing for Safety in Sports Halls - Part 8: First Aid

Provision. (Datasheet 60.8) London: UK Sports Council.

**1. TITLE OXYGEN EQUIPMENT**

**2. DATE ISSUED** 1 July 1996, ISSUE 3

**3. PURPOSE** To establish the appropriate requirements for oxygen equipment, when provided, for resuscitation and therapy purposes at aquatic facilities.

**4. DESCRIPTION**

**4.1 Australian Standards**

Only equipment that conforms to the current Australian Standard AS 2488 should be provided.

**4.2 Qualifications**

(a) Minimum qualifications for operators of oxygen equipment are as follows:

- RLSSA Oxygen Resuscitation Award, or
- RLSSA Pool Lifeguard Award, or
- RLSSA Oxygen Equipment Award, or
- a qualification of an equivalent standard offered by a recognised oxygen equipment teaching organisation.

(b) These qualifications should remain current according to the policy of the accrediting organisation and, where appropriate, the Australian Resuscitation Council.

(c) Operators are accredited to use the specific oxygen equipment and to the competency level of the specific training course.

**4.3 Storage**

Oxygen equipment should be stored in a clean, dry, ventilated location free from dust, oil, grease, heat, sand and readily accessible to trained staff.

**4.4 Servicing**

(a) All equipment should be serviced and maintained in accordance with the manufacturers' recommendations or at least annually, or after any problem in operation, or when the trained operator is uncertain of performance.

(b) Oxygen equipment including cylinders should be inspected and checked for correct operation and adequacy of oxygen prior to or at Centre opening each day.

**4.5 Training**

(a) Those pools utilising oxygen equipment should ensure that staff participate in regular practise sessions.

(b) A record of this training should be retained.



**1. TITLE**            **FIRST AID STATIONS**

**2. DATE ISSUED** 1 July 1996, ISSUE 1

**3. PURPOSE**        To provide guidance on the provision of First Aid stations in swimming pool facilities.

**4. DEFINITION**

A First Aid station is a designated location adjacent to a swimming pool concourse at which a range of First Aid and rescue equipment is placed to enable ready access by trained pool supervisors and lifeguards.

**5. DESCRIPTION**

**5.1**                    **Location**

- (a) The First Aid station is usually located near a main pool supervision area.
- (b) For outdoor swimming pools a portable First Aid station or trolley may be appropriate.

**5.2**                    **First Aid Equipment at Station**

- (a) First Aid Kit appropriate to the environment.
- (b) Oxygen Equipment.
- (c) Chair.
- (d) Blanket.
- (e) Rigid extrication collars.
- (f) Report Forms.

**5.3**                    **Rescue Equipment**

- (a) Rescue tube, rescue can or other flotation device.
- (b) Rescue pole.
- (c) Throw rope.
- (d) Spineboard.

**5.4**                    **Other Equipment**

The First Aid station may also be used as an emergency station as such additional equipment may be available, including:

- (a) Loud hailer.
- (b) Hard hat.
- (c) Plant emergency shut off controls.
- (d) Telephone.
- (e) Public address microphone.

**1. TITLE DESIGN OF POOL TANK****2. DATE ISSUED** 1 July 1996, ISSUE 3**3. PURPOSE** To establish safety guidelines for the design of pool tank.  
Note: For competition swimming pool design refer the FINA Handbook.**4. DESCRIPTION****4.1 Pool Depth**

Abrupt changes in water depth should be avoided particularly where bathers can stand.

4.1.1 In water depth where people can stand slip resistant surfaces should be provided where there is an abrupt change of depth.

4.1.2 Changes in gradient of the pool floor should be highlighted with a contrasting colour such as contrast tiles or painted lines.

4.1.3 Gradient for the pool floor should not be steeper than 1:15, particularly in water less than 1.6 m.

4.1.4 Changes in gradient of the pool floor where the depth is 1.6 m or greater should be highlighted by an appropriate sign (refer also AS 2416 sign 215).

4.1.5 Where a diving pool is provided in the main pool, the transition from shallow to deep water may need to be steeper than 1:15. Where this occurs special markings and appropriate signage should highlight this abrupt change in depth. (refer also AS 2416, sign 215).

**4.2 Leisure and Pool Depths**

4.2.1 The depth of water in pools designed for leisure activities such as tarzan ropes, climbing nets, flying foxes, water slides, flumes, inflatables, interactive play equipment and wave pools should be carefully considered and be appropriate for the activity, at all times ensuring the safety of the public.

**4.2.2 (a) Tarzan Ropes**

The depth of water over which a tarzan rope should be installed will depend upon the height of the take off, the length of the rope, the horizontal distance between the take off and the rope fixing point and therefore the pendulous arc. Minimum water depth should be 1.8m.

**(b) Climbing Ropes**

The depth of water over which climbing ropes or cargo nets are installed will depend upon the height to which a user can climb to re enter the water. The minimum depth of water should be 2.0m (refer also Guideline FD8).

**(c) Flying Foxes**

(i) The take off point should be at the edge of the pool ensuring the user is over adequate water depth immediately after take off whereby falling from the equipment into the water would not result in the user striking the bottom of the pool causing injury.

(ii) The depth of water over which the user travels will depend upon the users height above the surface of the water. The greater the height, the greater is the required depth of water.

(iii) The Flying Fox should be designed to allow the user to finish in the water a minimum of 2.0m of horizontal distance before the pool edge.

(d) Water Slide

(i) The depth of water into which a user completes the ride will depend upon the design of the water slide and the body of water used at the end of the slide, eg, a dedicated pool, a multipurpose pool or a splash down.

(ii) The rider should not be propelled to the opposite pool wall when exiting the slide.

(e) Inflatables

The depth of water in which an inflatable is located will depend upon the size of the inflatable and the age and size of the potential users. The depth of water should take into consideration the potential for the user to fall off, slide off or dive.

(f) Interactive Play Equipment (Children's Playground in Shallow Water)

The depth of water in which interactive water play equipment is installed is generally in the vicinity of 0.2m to 0.4m, depending upon equipment design.

(g) Wave Pools

The size of waves to be generated and the activities which will be conducted in the pool particularly when the waves are off will determine the depth of water and floor gradients of a wave pool. The minimum depth of water is usually 1.6m.

(h) Rivers

Lazy or rapid rivers should have a constant depth throughout the length of the water course. Typical water depths are from 0.75m to 1.2m.

### 4.3 Surfaces

4.3.1 All areas where bathers enter the pool or congregate during activities need to have a slip-resistant and non-abrasive surface. These include:

- steps and ramps,
- beach entry,
- pool floor at shallow end of competition/lap pools where bathers can stand,
- learners pool,
- toddlers pool.

4.3.2 Where tiles are used, the tiles should conform to the International Standard Grade C slip resistance.

### 4.4 Siting of Pools

4.4.1 (a) Toddlers and learners pools should be situated away from the deep end of a pool or diving pools.

(b) Where this is not possible, effective transparent barriers, and appropriate signage should be provided.

(c) These barriers should not interfere with the line of sight for supervision.

4.4.2 Water of 1.2m depth or greater should not be situated near main entry points to pool hall, major traffic flow areas or change room entry. Where this is not possible effective barriers, and appropriate signage should be provided..

#### **4.5 Fittings and Fixtures**

4.5.1 Any fixture or fitting in the pool wall (eg, lane rope anchors) and the pool floor (eg, inflatable tie downs) should be fitted flush and have no sharp protruding edges.

4.5.2 Where fittings and fixtures are located in a tiled surface, the tiles should be flush with the fitting and have no sharp and protruding edges.

#### **4.6 Gutters and Wet Deck**

Where a wet deck gutter system is used, it should:

- (a) Not allow water to flow on to the pool concourse.
- (b) The grate must be neat fitting with no gaps between adjoining grate sections and no raised or buckled slats.
- (c) In wave pools the grate should be fixed to prevent dislodging during wave motion.
- (d) Curved grating systems should be flush fitting.

**1. TITLE            DESIGN OF POOL CONCOURSE****2. DATE ISSUED** 1 July 1996, ISSUE 2**3. PURPOSE**     To establish safety guidelines for the design of the pool concourse.**4. DESCRIPTION****4.1                Concourse Width**

The concourse is the area from the edge of the water to the wall or fixed seating or barriers.

**4.1.1**            The recommended concourse width is 3.0m or greater particularly in the following areas:

- entrance to pool,
- adjacent to shallow water,
- beach entry areas,
- access routes to water slides and splash down pool,
- high traffic and circulation areas.

**4.1.2**            The minimum width for the concourse should be 2.0m.**4.2                Concourse Surface****4.2.1            Height Variations**

- (a) Abrupt changes in floor level in the wet concourse areas should be avoided.
- (b) If steps to changing areas are required, handrails and slip resistant surfaces should be provided.
- (c) Where there is to be a split level concourse, and ramps are provided instead of steps, the ramp gradient should not be greater than 1:14. The desirable gradient is 1:15.
- (d) Slip-resistant surface and handrails are recommended
- (e) Where tiles are used, the tiles must conform to the International Standard Grade C slip resistance.

**4.2.2**            All wet circulation areas should have a slip resistant and non-abrasive surface, preferably in accordance with AS/NZS 3661.1.**4.2.3**            The concourse should be constructed to facilitate drainage or flow of water to the wet deck gutter and prevent pooling of water.**4.2.4**            All concourses should be free from lips or raised edges, particularly where surface changes (eg, tiles to wet deck) unless otherwise clearly identified by contrasting colour or hazard identification markings.**4.2.5**            Wall surrounds should not present a hazard to bathers. Projecting structural pillars or piers should be avoided. However where present, they should have rounded edges and the surface texture on all walls should be non-abrasive to a height of 1.5m.

### 4.3 Supervision Points

- 4.3.1 (a) The layout of the water space should allow for supervision with a minimum of staff. Ideally there should be one or two specific vantage points from which all water spaces can be seen.
- (b) These vantage points should be in direct visual and audible contact with either a reception or administration area of the complex.
- 4.3.2 Placement of barriers on the pool concourse should not obstruct lines of sight from the main supervision points.
- 4.3.3 The layout of the pool concourse should enable supervising staff to move around freely without losing sight of water areas.
- 4.3.4 (a) Planter boxes and other features on the concourse should have no sharp edges or rough surface texture, nor should they interfere with sight lines for supervision.
- (b) Such items should not reduce the concourse width, restrict circulation flow or restrict emergency access and egress.

### 4.4 Seating

- 4.4.1 (a) Where seating is provided on the concourse, the minimum concourse width remaining after allowance for leg, room should be 2.0m (refer also Section 4.1 above).
- (b) Where retractable seating is provided the minimum concourse width is 1.2m when seating is in place.
- 4.4.2 Moveable seating or other furniture should not be placed in areas adjacent to the pool, where there is a likelihood of these being used as diving platforms.

### 4.5 Marshalling Area

- 4.5.1 A marshalling area should be provided adjacent to the learner pool or section of the main pool which is used for lessons. This should enable supervising staff to assemble learner groups on the concourse without impeding the circulation flow of other users and staff.
- 4.5.2 This area should be located away from deep water or high traffic areas.

**1. TITLE POOL DEPTH MARKINGS****2. DATE ISSUED** 1 July 1996, ISSUE 2**3. PURPOSE** To advise pool designers, builders and operators on the minimum standard of markings for pool water depths.**4. DESCRIPTION**

- 4.1**
- (a) All depth markings should be provided in metric measurements.
  - (b) It is desirable to provide imperial measurements in brackets next to the metric measurements, when upgrading old pool markings or in pools frequented by immigrants or tourists from those countries still using imperial measurements.
  - (c) Markings should be in m, eg, 0.9m, 1.2m, 1.5m, 1.8m, 2.0m.
- 4.2** The markings should be in numerals and letters at least 100mm in height.
- 4.3** Markings should be placed in a position where they can be seen from the water and from the pool side.
- 4.4** The number and location of depth markings will vary dependent upon the size and configuration of the pool. However there should always be depth markings at the shallow end and deep end, and additional markings along the length of the pool.
- 4.5** Any sharp change in gradient should be clearly marked and sign posted. (refer also Guideline FD1) .
- 4.6**
- (a) In shallow water generally 1.0m deep or less the words CAUTION SHALLOW WATER or DO NOT DIVE or similar should be marked on the pool concourse.
  - (b) Alternatively, an international standard no diving sign should be provided (refer also Guideline FD6 and FD 8).
- 4.7**
- (a) All pool depth markings should be of a strong contrast against the surrounding areas.
  - (b) Pool depth markings should be installed to minimise fading or damage from bather traffic or from cleaning.



**1. TITLE**            **ADVISORY SIGNS****2. DATE ISSUED** December 1995, ISSUE 2 (previously RS12)**3. PURPOSE**        To provide advice regarding the type and nature of advisory signs for use in swimming pools.**4. DESCRIPTION**

- 4.1**                Standards Australia has developed guidelines for the design and application of water signs for surf beaches (refer AS2416 - 1985). These signs have been well researched and evaluated and show very high results in terms of recognition and recall and as a result such signs, where applicable, may be used when appropriate.
- 4.2**                The Standards Australia signs which may be applicable are:
- beware of deep water (refer AS2416 sign 216),
  - beware sudden drop off (refer AS2416 sign 215),
  - beware shallow water - do not dive (refer AS2416 sign 213).
- 4.3**                Other signs which may be applicable to centres include:
- slippery when wet,
  - cleaning in progress,
  - pool closed,
  - lane closed,
  - advisory signage indicating what is allowed and who is allowed access to what area,
  - warning - changing water conditions (wave pools, rivers and features).
- 4.4**                Any signs which are not provided for in AS2416 -1985 (or any revision thereof), should conform to the design, location and legibility advice given in that Standard.
- 4.5**                The colour and manufacture of signs should conform to the co-ordinates specified in AS2342 (part 5 and 7).
- 4.6**                Deep and shallow ends of a pool should be clearly marked with the words "Deep Water" or "Deep End" and "Shallow Water" or "Shallow End" as appropriate, in large and easily visible letters.
- 4.7**                (a) All markings must be of a strong contrast against the surrounding areas.  
(b) It is desirable that markings be installed to minimise fading or damage from bather traffic or from cleaning.



**1. TITLE            DESIGN OF POOL ACCESS****2. DATE ISSUED** 1 July 1996, ISSUE 1**3. PURPOSE**     To establish guidelines for the safe design of swimming pool entry and exit.**4. DESCRIPTION****4.1            Access**

Pool entry/exit steps and handrails above, at or below the surface of the water should not protrude into or over lap swimming lanes where they may present a hazard to swimmers.

**4.2            Railing**

4.2.1           Handrails should be provided at all entry/exit steps.

4.2.2           The handrails should be designed to prevent entrapment of limbs and should be placed so that they do not present a hazard during aquatic activities such as tumble turns and play.

4.2.3           Barrier rails should be provided to prevent swimmers from jumping from the concourse on to steps or ramps.

4.2.4           Handrails should be provided on both sides of a ramp.

4.2.5           Steps which may be frequented by aged or frail persons should be provided with handrails on both sides in accordance with AS 1428.1.

4.2.6           For extra wide steps, it is recommended that handrails be provided at intervals of between 2.0m to 3.0m.

**4.3            Steps**

4.3.1           (a) Entry/exit climb outs and steps should be provided on both sides of each end of the pool.

(b) For longer (50m) pools these should be provided at the midpoint of each side.

4.3.2           (a) Entry/exit climb outs should be provided on both sides of the deep end of a wave pool.

(b) During wave motion, entry to the pool at climb outs should be prohibited.

4.3.3           Vertical (rise) and horizontal (tread) edges of steps should be a contrasting colour to aid entry and exit from the pool.

4.3.4           Steps should have rise and tread conforming to local building regulations and have slip-resistant and a non-abrasive surface.

4.3.5           For access to learner or toddler pools wider steps with shallow rises (approx. 150mm) are recommended.

**4.4            Leisure Pool Access**

4.4.1           For irregular shaped leisure pools adequate entry and exit areas should be provided.

4.4.2           Beach entries should be flush with pool concourse or wet deck, and where not flush a contrasting colour band and appropriate signage should be used to warn the public.

4.4.3           Beach entry areas should be visually distinguishable from the pool floor.

**4.5            Ramps**

4.5.1           Where disabled access is provided via a ramp, this should enter the pool at the shallowest end.

4.5.2           Gradient should be no steeper than 1:15.

**4.6            Lifting Devices**

Special lifting devices which assist swimming pool entry and exit for persons with disabilities require specific access considerations such as height, width of concourse, free lateral and circular movement (refer also Guideline FD19).



**1. TITLE SWIMMING LANE DESIGN****2. DATE ISSUED** 1 November 2002, ISSUE 2**3. PURPOSE** To establish safety guidelines for safety in the design of swimming lanes for lap swimming, and recreational swimming.

Note: Where pools are to be used for competitions and competitor training, reference should be made to the current edition of the FINA Handbook for recommended swimming pool dimensions and lane design.

**4. DESCRIPTION****4.1 Swimming Lanes**

4.1.1 Where lanes are provided for lap swimming a minimum depth of 900mm is recommended where tumble turns are expected to be performed.

4.1.2 When lane 'ropes' are used they should not present a hazard to the public with sharp edges, or fittings.

4.1.3 Optimum lane width for lap swimming is 2500mm.

4.1.4 Fixtures for lane ropes should allow for minimum 2 way lap swimming lane width of 2000mm. Narrower lanes down

to 1500mm may be provided for educational or recreational program activity.

Note 1: Slip resistant surfaces should be used in water depth less than 1600mm

Note 2: Lap width measured anchor point to anchor point.

4.1.5 Lane markings shall be of a dark contrasting colour, placed on the floor of the pool in the centre of the lane.

(a) Line width should be minimum 200mm with a maximum of 300mm

(b) Line length should be:

- 46 m for a 50m pools

- 21 m for 25m pools

(c) Lines should finish 2000mm from the end wall of the pool

(d) Lines should finish with a distinctive cross line 1000mm long and of the same width at each end.

4.1.6 Target lines should be placed on the end walls or touch panels in the centre of each lane. Target lines should be the same width as the lane marking line.

(a) These should extend without interruption from the pool edge to pool floor.

(b) A cross line should be placed 300mm under the water surface. This line should be 500mm long.

Note 1. 300mm should measured to the centre point of the cross line.

Note 2. Touch panels cross lines should extend the whole depth of the touch panel.

4.1.7 Colour markings should be use on lane ropes to identify the 5000mm mark from both ends of the pool.

## 4.2 Backstroke Turn Indicators

Definition: Flagged ropes suspended across the pool 5000mm in from each end of the pool, and at least 1800mm above the water surface.

- (a) The backstroke turn indicator support poles should be removable and be a distinctive colour.
- (b) The recess into which the support pole is inserted should be flush with the surface.
- (c) The flag colour and design should be visible from the water and be contrasting with the facility surrounds.
- (d) For competition and competitive training backstroke turn indicators should be installed at 1800mm above water level.

Note: For recreational use consideration should be given to maximum height above water of backstroke turn indicators as height will effect, vision and perception of the distance to the pool edge/wall.

## 4.3 Automatic Timing Equipment (Refer Electrical Safety Guideline)

### 4.3.1 Touch Panels

- (a) The touch panels should have no sharp edges.
- (b) The installation system for portable touch panels should have no sharp or protruding fittings.
- (c) The touch panels should not present the possibility of electric shock.

### 4.3.2 Cords and Connections

- (a) Cords used for automatic timing should not present a trip hazard to users.
- (b) Connection housings should be water proof and be located where they do not present a trip hazard to users.

## 6. REFERENCES

Guideline FD 24 Design of Starting Blocks (Starting Platforms)

Guideline SU24 Safe Water Entry for Competitions (Competitive Starts) FINA Handbook

**1. TITLE** MOVEABLE BOOMS (BULK HEADS)

**2. DATE ISSUED** 1 July 1996, ISSUE 1

**3. PURPOSE** To provide safety guidelines on the design and installation of moveable booms.

**4. DESCRIPTION**

4.1 Moveable booms are installed in swimming pools to allow flexible division of the water space. Moveable booms come in a number of configurations:

- narrow (approximately 500mm wide),
- medium (approximately 1000mm wide) with starting blocks facing in one direction,
- large (approximately 1500mm to 2000mm) with starting blocks facing in both directions,
- top of boom flush (slightly above) with water surface,
- top of boom raised above (approximately 300mm) the water surface.

4.2 The boom should be designed to prevent entrapment of people and equipment both under and inside the boom.

4.3 The boom should be designed in such a way that regardless of the primary method of movement it may be moved normally while not compromising employee health and safety.

4.4 An electrically movable boom should be connected to an electrical circuit fitted with appropriate earth leakage protection.

4.5 When in situ, the boom should be able to be firmly anchored in place.

4.6 The surface of the boom should be slip - resistant.

4.7 For competition pools, the boom must be rigid and not allow flexing in the middle lanes when struck by swimmers.

4.8 Moveable booms which can be raised above the pool or lowered to the pool floor need special health, safety and supervisory design considerations.

**1. TITLE DIVING TOWERS, SPRINGBOARDS AND POOLS****2. DATE ISSUED** 1 July 1996, ISSUE 1**3. PURPOSE** To establish guidelines on safety considerations in the design of diving towers, springboards, and diving pools.**4. DESCRIPTION**

The dimensions for the design and construction of diving pools, platforms and springboards are clearly shown in the FINA Handbook. The use of diving facilities within a multi purpose aquatic leisure venue will also have influence on design.

**4.1** Platforms and springboards should be provided with a satisfactory slip resistant surface.**4.2 Springboards**

(a) Springboards should be installed either side of the platform tower.

(b) Springboards should not be installed on opposite or adjacent pool sides to each other.

(c) Springboards should not be installed under any other springboard or platform or other obstruction.

Overhead clearance should be a minimum of 5.0m.

(d) Springboards should be fitted to the fulcrum to ensure maintenance of a central aspect within the structure.

**4.3** Diving towers should be offset with no overhead obstruction. The minimum offset between midpoints of adjacent platforms or springboards should be 2.5m.**4.4** Diving platforms and boards should be provided at least 2.5m clear of the pool walls.**4.5 Diving Pools**

(a) The diving pool due to its greater depth should have its walls and floor finished in a light colour.

(b) The ceiling above the diving pool should be finished in a contrast colour to that of the pool to allow for diver orientation.

(c) A spray of water on to the pool surface (mechanical agitation) is advisable for competition to avoid diver distraction from glare and light reflection and to allow a diver to identify the surface of the water.

(d) Ladders or climb outs allowing for prompt exit from the pool should be provided directly opposite, and in large diving pools adjacent to, the diving tower or springboards.

(e) In outdoor facilities where diving pools are used for a range of competition and recreational activities, they should be isolated with approved safety fencing.

**4.6 Handrails**

(a) Handrails should extend along the edge of the platform or springboard structure to level with the pool edge.



- (b) For diving from a board 1.0m or less in height the handrail can extend over the pool up to 0.3m.
- (c) The gap between horizontal handrails should not be greater than 0.33m. Ideally, the handrails should be finished with clear polycarbonate (or similar) when diving higher than 1.0m above water or when used for beginners.
- (d) Handrails should be provided on all ladders and stairs leading to the diving board. This is in addition to the rail on which the rungs or steps are affixed.
- (e) Handrails should be slip resistant.

**4.7** The diving platform or springboard should extend over the pool edge into the pool for a least 1.5m.

**4.8** (a) Vertical ladders should not be provided for diving boards and platforms higher than 1.0m.

(b) Stairs are preferred with diving towers.

**4.9** Steps and ladders leading to diving facilities 3.0m or more above the pool surface should be installed at not more than 50° from the horizontal.

**1. TITLE            WAVE POOL DESIGN****2. DATE ISSUED** 1 July 1996, ISSUE 1**3. PURPOSE**     To provide guidelines for the design of wave pools.**4. DESCRIPTION**

The wave pool is usually a fan shaped pool varying in both surface area and depth, sloping from a beach to between 1.6m and 2.0m at the wave generation end. Waves are created by computer controlled wave generators using either mechanical paddles, water pressure or air pressure. The computer controls the wave frequency, amplitude, pattern and cycle duration.

**4.1                Pool Floor**

4.1.1            The gradient of the pool floor will determine wave shape characteristics and should be gently sloping at a maximum gradient of 1:15.

4.1.2            The pool floor should be a slip resistant finish and tiles should meet the International Grade C standard.

4.1.3            The pool floor surface should be non - abrasive.

4.1.4            (a) The pool floor should have lines or alternating colours to provide a visual indication of the changes in depth.  
(b) A line, or distinctive contrasting colour pool floor extending out from the pool wall (wave generating end) approximately 1.0m to 1.5m should be provided to signify a bather free zone. This zone becomes useful during wave motion.

4.1.5            A beach without steps or small lips is recommended.

4.2               Islands, rocks or other water features should not be installed in wave pools, particularly in the wave breaking zone, where water movement could wash a bather against a solid object possibly causing injury.

**4.3                Entry and Exit**

4.3.1            There should be no change in level between the concourse and pool at a beach entry.

4.3.2            (a) Steps or ledges are not recommended along the sides of wave pools as they promote bather entry/exit which can be dangerous during periods of wave motion.  
(b) Where provided, steps should allow entry into water at a static water depth of less than 400mm.  
(c) Steps and ledges should not protrude into the pool past the edge or pool wall. Recessed steps or climb outs with non-slip finger-hold lips are recommended.  
(d) Non-protruding pool exit steps should be provided at the deep end for bathers in difficulty.  
(e) A holding apparatus, such as a rope should be placed along the wall of the deep end of the pool for use by swimmers in difficulty during non-wave periods. (refer also Section 4.1.4 b above).  
(f) Adequate access for supervising personnel should be provided to allow rescues to be performed unencumbered.

#### **4.4 Controls**

4.4.1 Poolside emergency stop button/s should be provided.

4.4.2 (a) Poolside manual/automatic wave generation controls should be provided.

(b) The controls should be provided in a location from which the operator can control and view the entire wave pool.

(c) The controls should have security allowing operation by lifeguards only.

4.4.3 A wave generation master off switch should be located immediately adjacent to the wave plant room door to ensure wave plant operation cannot be initiated poolside while staff are inside the wave generation plant room.

#### **4.5 Signage**

##### **4.5.1 Depth**

Depth signage similar to that used in conventional pools should be used. (refer also Guideline FD-3).

##### **4.5.2 Wave Pool Specific**

Additional signage specific to wave pools may be required. This could include items such as:

(a) Do not jump or dive into or onto waves,

(b) Do not approach deep end walls during waves,

(c) Bathers should not enter the waves if:

(i) Pregnant,

(ii) Had recent surgery,

(iii) Have a known heart condition,

(iv) Have known back condition,

(d) Warning: Changing water conditions.

#### **4.6 Audible and Visual Indicators**

4.6.1 An audible alarm indicating the impending start of waves, usually a 1 minute warning, should be provided.

Note: Lifeguards should be alert as the alarm could encourage bathers to run from all parts of the venue to the wave pool.

##### **4.6.2 Alarm**

A visual and audible alarm should be raised in the event that an emergency stop button is operated.

#### **4.7 Water Quality**

##### **4.7.1 Bather Load**

Wave pools usually require a higher water turnover rate than conventional swimming pools due to the usual greater bather load and bather activity.

##### **4.7.2 Sanitation**

Wave pools may require higher water treatment rates to maintain effective oxidation and adequate residual levels due to movement of the pool water.



**1. TITLE RIVER DESIGN****2. DATE ISSUED** 1 July 1996, ISSUE 1**3. PURPOSE** To establish safety guidelines for the design of moving water in channels and designated rivers.**4. DEFINITION**

Rivers are level channels of moving water created by pumping water at predetermined flow rates.

The unidirectional channels are between 1.5m and 3.0m wide, with water from 0.75m to 1.2m deep and a length determined by available space usually between 20m and 50m indoors. 'Lazy rivers' may be defined as water moving less than 1.5m per second and 'rapid rivers' as water moving greater than 1.5m per second.

**5. DESCRIPTION**

**5.1** Gradual Depth changes at both river exit and entry should be at a gradient of 1:15 and should be slip resistant. Steps should not be used.

**5.2 Walls and Floor**

**5.2.1** The river should be finished with smooth walls and floors to reduce the risk of cuts, bruising and abrasions to bathers as they brush against or are forced against them.

- 5.2.2**
- (a) The height from static water level to the pool edge should be such that the water is retained within the river channel.
  - (b) A bather should also be able to grasp the edge should the need arise.
  - (c) Consideration should be given to bather safety and their ability to support themselves above water level when in difficulty. Should the height and finish (flat tiles) of the pool edge be such that some bathers may have difficulty in reaching or grasping it, consideration should be given to the provision of a flexible rope system along one wall of the river. The rope fixing system should be recessed into the pool wall. The rope system is preferable over the alternate solid stainless steel or similar hand rail due to the risk of bather impact and entrapment.

**5.3 Water Flow**

**5.3.1** The water should only flow in one direction.

**5.3.2** The water flow should not create an undertow, eddy currents or cross currents. Should variable speed flow rates be available and used resulting in the river being either lazy or rapid (as defined above), appropriate bather notification must be used to indicate prevailing water conditions. This may include signage or audible notification.

**5.3.3** An emergency stop button must be located within close proximity for use by facility supervisors and lifeguards in emergency situations.

5.3.4 Circular style rivers with outlets and inlets in close proximity require special consideration as they may create a vortex. This effect may continue with bather movement alone even when booster pumps are switched off. Some bathers may be unable to escape the flow.

5.3.5 Water flow created by wave motion will also require special consideration including:

(a) Waves entering both river inlet and outlets thereby creating a higher wave within the river at the meeting points

(b) Possible higher pool edges to reduce the chance of flooding of pool concourse or planters

(c) The effect on wave motion caused by depth of water and width of river.

Note: Designers should give consideration to the use of models to ascertain possible water movements during the pool design phase.

#### 5.4 **Entry and Exit**

5.4.1 No obstruction such as hand rails or entry/exit ladders or steps should enter into or protrude into a river.

5.4.2 Suitable free deck space adjacent to the river should be provided for lifeguard supervision and access.

#### 5.5 **Bridges and Overhangs**

5.5.1 The river should not be obstructed by any overhead object such as rocks or bridges unless a clear space of at least 2.0m above static water level is provided.

5.5.2 This height should be increased to at least 3.0m where wave action enters the river.

1. TITLE WATER FALLS AND SHOWER CURTAINS

2. DATE ISSUED 1 July 1996, ISSUE 1

3. PURPOSE To provide guidelines for the design of water falls and shower curtains.

4. DESCRIPTION

4.1 Falling water should be designed as an aesthetically pleasing attraction under and through which bathers can play.

As such the volume and velocity of falling water should not harm the bather.

4.2 At the outlet falling water should be the same temperature or higher as the water into which it will fall.

4.3 The visual density of the falling water should be such as to allow a bather to be distinguishable while situated behind it.

4.4 Disturbance to the surface of the pool caused by the falling water should be such as to allow a bather to be distinguishable while situated underneath the waters' surface.

Note: Lighting, pool wall and floor colour are also contributing factors to ease of supervision.

4.5 Controls

(a) Stop and start controls for all falling water features should be placed in such a position to allow the operator clear sight lines over the area under the feature's influences and beyond.

(b) Each water feature should be able to be individually controlled. 4.6 Mixing Water Water from one treatment system should not enter water circulating in a different water treatment system.

**1. TITLE WATER FEATURE DESIGN****2. DATE ISSUED** 1 July 1996, ISSUE 1**3. PURPOSE** To provide guidelines for the design and placement of water operated features.**4. DESCRIPTION**

Moving water such as water spouts and water cannons provide not only fun or an aesthetically pleasing environment but also a noisy environment.

**4.1 Water Cannons**

4.1.1 The force of water from a water cannon should not be such as to cause harm if inadvertently aimed at another bathers body, in particular the face.

4.1.2 Appropriate signage should be displayed warning against aiming water at bathers faces.

4.1.3 The scope (range, horizontal and vertical movement) should be restricted to water areas only.

4.1.4 Sufficient space should be allowed so that water under pressure from features cannot reach areas or fittings designed to remain dry. (eg, ceilings, lights, speakers).

**4.2 Water Spouts (Vertical) or Geysers**

4.2.1 Water spouts or geysers should not be turned on while bathers are sitting or standing on or near the water outlet.

4.2.2 The height to which the water spout rises, and hence the pressure of the water should be balanced between the aesthetic appearance and the management of potential risk.

**4.3 In-Water Features**

4.3.1 In-water features, particularly fibreglass or glass reinforced plastic (GRP) figures and animals need special attention including:

- (a) Height above water surface and ability to climb onto and jump from.
- (b) The need for a slip - resistant and non-abrasive surface.
- (c) The integration of water spouts (refer also Section 4.2 above).
- (d) Possible interruption to sight lines.
- (e) Inability to get caught on or in the feature.
- (f) Absence of sharp or protruding fittings, (eg elephant trunk, car steering wheel).

**4.3.2 Electrical Connection**

- (a) It is recommended that electrically operated devices not be used in conjunction with a water feature.
- (b) Where electrical devices have been incorporated into a water feature, the electrical voltage should be less than 24 volt and the 240 volt primary circuit should be connected via an earth leakage protection device.

**4.4 Feature Control**

All features should be controlled via a control panel situated adjacent to the pool or pools in which or into which the features operate (refer also Guideline FD11).



**1. TITLE INTERACTIVE WATER PLAY EQUIPMENT****2. DATE ISSUED** 1 July 1996, ISSUE 1**3. PURPOSE** To establish guidelines for the design of interactive water play equipment.**4. DEFINITION**

Interactive water play equipment is a water orientated playground with equipment releasing water under automatic control or by patron operation of levers, wheels and ropes. The equipment is usually installed in water of between 0.2m and 0.4m depth.

**5. DESCRIPTION**

**5.1** Surfaces on which pedestrian traffic is expected should be of a high standard slip resistance and non-abrasive.

- 5.2**
- (a) Integrated slides should have water flow to aid movement.
  - (b) Water slides may require a soft padding overlaid on the pool floor ensuring a soft landing for riders.
  - (c) It is recommended that slides be capable of being sealed off for crowd control and maintenance activities.

**5.3 Pool**

**5.3.1** The pool in which the equipment is installed should:

- (a) Have high standard slip resistant floor
- (b) Should be large enough to house the equipment leaving adequate space between the pool edge and the equipment.

**5.3.2** Allowance should be made for swinging items, water slide outlets and other equipment which may propel patrons near to the pool edge.

**5.3.3** Depth signage must be clearly visible on the pool edge.

**5.3.4** It is recommended that additional signage using the words 'Caution - Shallow Water' or similar be placed at intervals around the pool. (refer to Guideline FD4).

**5.3.5** The pool should only have round edges and gentle curves. Abrupt changes in pool levels or edges should be avoided.

**5.4 Equipment**

**5.4.1** (a) The equipment should be designed to carry a predetermined load.

- (b) The maximum number of people on the structure at any one time should be marked on the equipment and visible from at least one point on the pool deck.

- 5.4.2 The equipment should be constructed from non-corrosive materials.
- 5.4.3 Where wheel and lever valve controls are used they should not protrude into traffic flow areas.
- 5.4.4 Water pressure controls should restrict the water from reaching onto or splashing the pool concourse.
- 5.4.5 Water should not be at a pressure which may result in personal injury.
- 5.4.6 Stairs providing access to the equipment should:
- (a) have rise and tread appropriate to the size of the proposed users.
  - (b) have handrails at heights commensurate with the proposed users.
  - (c) be of a high standard slip resistance.
- 5.4.7 The equipment should have barriers preventing falls into shallow water.

**1. TITLE           DESIGN OF MOVEABLE FLOORS****2. DATE ISSUED** 1 July 1996, ISSUE 1**3. PURPOSE**     To establish guidelines on safety considerations on the design of moveable floors.**4. DESCRIPTION**

**4.1**               Swimming pools with devices which raise and lower the pool floor whether in full or in part require special safety and design considerations.

**4.2               Signage**

**4.2.1**           Appropriate signage indicating the depth of the pool at any time should be clearly visible from all pool access points.

**4.2.2**           Depth signage should have numerals and letters at least 150mm in height.

**4.2.3**           The signage should be synchronised with the height of the floor.

**4.3               Sloping/Moveable Floors**

**4.3.1**           Moveable floors which have the ability to slope on an angle should have adequate signage along the length of the slope to indicate the actual depth at intermediate depths of 0.3m variation. This signage is in addition to depth signs at the deep and shallow ends.

**4.3.2**           Moveable floors which slope should be designed with pool orientation in mind. The deep side of a sloping moveable floor pool should be oriented away from the shallow end of an adjacent pool.

**4.3.3**           The slope should be not greater than 1:15.

**4.3.4**           The surface of the moveable floor should be slip-resistive and non-abrasive.

**4.4               Controls**

**4.4.1**           All controls should be located adjacent to both the pool concourse and the pool with the moveable floor.

**4.4.2**           Controls should be secure and only activated by a lifeguard or other authorised staff.

**4.4.3**           It is desirable for the floor to move only while the controls are held manually operated.

**4.4.4**           Audible and visual indicators should operate while the floor is moving.

**4.5**               The concourse width surrounding a pool with a moveable floor should be greater than 3.0m.

**4.6**               The circulation of water above and below a partially raised floor should ensure maintenance of water quality within appropriate regulations.

1. TITLE            **SHADE PROTECTION**

2. DATE ISSUED 1 July 1996, ISSUE 3

3. PURPOSE        To establish guidelines for the provision of shade for both employees and users.

4. DESCRIPTION

4.1                **Landscaping**

In open air facilities, the landscaping and choice of trees should provide many areas of shade around a facility. There should be enough provision of shade over wet and dry areas to cater for all those who wish to avoid long exposure to the sun, particularly between 11.00am and 3.00pm.

4.2                **Awnings/Covered Areas**

4.2.1             The provision of awnings and covered areas with appropriate seating is recommended.

4.2.2             Umbrellas can be used to increase the availability of shade. They can be fixed or moveable, however, when in use they must be anchored securely.



**1. TITLE ELECTRICAL CONNECTIONS AND FEATURES****2. DATE ISSUED** 1 July 1996, ISSUE 1**3. PURPOSE** To provide guidelines on electrical safety considerations in the design of features around swimming pools.**4. DESCRIPTION**

**4.1** Work on electrical installations and equipment requires specialist skills and should only be carried out by approved or registered employees or trades - people.

**4.2** Electrical equipment must be kept away from swimming pools.

**4.3** In instances where electrical equipment is to be used near swimming pools:

(a) General purpose outlets should be installed at least 3.0 m distance from the nearest pool and at least 1.0 m above the floor level.

(b) Water proof covers should be provided over the general purpose outlets (GPO)

(c) GPO should be connected to an earth-leakage protection device

(d) Some 3 Phase outlets may not be connected to an earth leakage protection device. Outlets should not be used to power equipment when people are in the water.

**4.4 Feature Lights**

Feature lights are used in planter beds/boxes, under water and behind water features eg, water falls. In all situations special precautions are required, such as:

(a) Feature lights should be of a low voltage, typically 24 volts DC.

(b) Lights in planter boxes should be insulated so that heat emissions as a result of prolonged use do not burn probing hands or fingers, or do not heat mulch or plants to the verge of ignition (flame).

(c) Lights located under or behind water should have access for maintenance or repair.

(d) Underwater lights must also be of a low voltage.

**4.5 Suspended Electrical Features**

(a) Electrical features suspended from ceilings or structural framework should be secured to prevent falling.

(b) The electrical connecting cable should be of a short length preventing entry into the water should the feature fall.

**4.6 Change Rooms**

Hair dryers should not be provided in change rooms and preferably in a designated dry grooming area.



**1. TITLE SPECTATOR GALLERIES AND SEATING**

**2. DATE ISSUED** 1 July 1996, ISSUE 1

**3. PURPOSE** To provide advice on the design of spectator viewing galleries and seating.

**4. DESCRIPTION**

- 4.1** (a) Seating frequently used for competition spectators should be provided with entry and exit to the pool deck.  
(b) As well as separate entry and exit to the pool entry foyer, entries to refreshment booths, kiosks and cafes and to toilets should also be provided without impeding traffic flow on the pool deck.
- 4.2** (a) On concrete and timber benches (bleaches), steps should be separate from the seating areas.  
(b) Steps should be slip resistant when both wet and dry.  
(c) Step rise and tread should be recognisable from above, below and from the side.  
(d) Entry and exit steps and stairs should have a minimum of 2200mm clear overhead height from each step.
- 4.3** The balustrade or barrier between the seating and the pool deck should be strong, clear and free from sharp edges.
- 4.4** Retractable seats should not allow entrapment of digits or limbs.

**1. TITLE            DESIGN FOR SPECIAL NEEDS POPULATIONS****2. DATE ISSUED** 1 July 1996, ISSUE 1**3. PURPOSE**    To provide guidelines on safety aspects relating to specific facility design considerations for groups and individuals with special needs.**4. DESCRIPTION**

Previous guidelines detailed in this document take into consideration many of the special needs of specific populations including:

- floor and ramp gradients
- slip resistant floors
- handrails

**4.1            Change Rooms**

- (a) Movable seats and benches should be corrosion resistant and regularly maintained.
- (b) A change table able to accommodate an adult and carry an adult's weight should be provided.
- (c) An audible and visual alarm button should be provided.

**4.2            Hoists and Lifters**

- 4.2.1            Hoists operated by water pressure should not rapidly lose height when water pressure is lost.
- 4.2.2            Hoist controls should be located so as not to cause injury to fingers or hands between the operating switch or lever and the chair.
- 4.2.3            Hoists should be positioned to allow for a clear swing including the person riding there on without any interference from a pool structure or landscaping.

**4.3            Visually Impaired Patrons**

- 4.3.1            Doors should be painted to provide at least a 30% contrast between adjacent walls.
- 4.3.2            Vertical and horizontal surfaces should have at least a 30% contrast difference.
- 4.3.3            (a) Floors and stairs should be slip-resistant.
- (b) Floors and stairs should have tactile pathways.
- 4.3.4            There should be no sharp or protruding edges or protruding fittings and equipment in corridors.
- 4.3.5            Toilets and change rooms should be identified using clear and large internationally recognised symbols. (refer also AS 1428)
- 4.3.6            Audible and visual alarms should be provided.
- 4.3.7            Tactile surfaces should be provided.
  - (a) On both the top and bottom tread of any steps
  - (b) At any change of direction in corridors.
- 4.3.8            Lighting levels need to be of a higher than normal illumination.

**1. TITLE**            **ACOUSTICS WITHIN POOL HALLS****2. DATE ISSUED**   1 July 1996, ISSUE 1**3. PURPOSE**        To establish safety guidelines for the acoustic control within pool halls.  
Note: This guideline only applies to pools/facilities commissioned after 1 July 1996.**4. DESCRIPTION****4.1**                **Room Acoustics Comfort and Safety****4.1.1**            The control of sound level within pool halls can contribute to comfort of the users, and the safety aspect of activities including lifeguard directions, emergency signals and public address (PA) announcements.**4.1.2**            **Reverberation**

- (a) For a swimming pool space the most significant acoustic consideration is reverberation time. The reverberation time is dependant solely upon the shape and volume of the pool hall together with the surface finishes of the space.
- (b) The Australian Standard AS2107, recommends that reverberation times for an indoor sports area should not exceed 2 seconds in the 500 Hz and 1KHz octaves. It is preferable to reduce the time to between 1.2 and 1.3 seconds.
- (c) Care should be exercised in the selection of the various surface finishes used to control room reverberation. Consideration should be given to water resistance, user wear and tear, maintenance and product life.

**4.1.3**            **Mechanical Noise Control**

- (a) Mechanical ventilation may cause noise in rooms due to either the aerodynamic noise made by the fan or fans, or to the transmission along the air ducts of external noises such as mechanical vibration of equipment.
- (b) Mechanical noise should be minimised.

**4.1.4**            **Water Noise**

- (a) One of the main sources of background noise in swimming pools is the draining of water to the filtration system. This is especially a concern in large pools with a 'wet deck' design. Considerable reduction of this noise can be achieved by constructing the run off trough with a slope on the pool side of about 30° to the vertical. This induces the water to run smoothly into the trough rather than splashing.
- (b) The use of water sprays, fountains, water falls and wave machines all add to the noise created by moving water. A balance between an aesthetic environment, fun, effective supervision and moving water should be achieved.

## 4.2

### Public Address (PA) System

The design of a public address system for a swimming pool is important as it forms part of an emergency action plan. Issues critical to the design are:

- (a) Output power
- (b) Speaker location, number and quality
- (c) Speaker control and isolation
- (d) Microphone location around building
- (e) Emergency override of locally attenuated speakers
- (f) Battery back-up
- (g) Location of main equipment rack
- (h) Operator training.

**1. TITLE            LIGHTING OF POOL HALLS****2. DATE ISSUED** 1 July 1996, ISSUE 1**3. PURPOSE**     To establish safety guidelines for the design of both natural and artificial lighting in pool halls.  
Note: This guideline will apply to pools/facilities commissioned after 1 July 1996.**4. DESCRIPTION****4.1                Natural Light**

- (a) The use of natural light within pool halls is of utmost importance and correct orientation of the pool hall to the sun is important. Natural light is not only energy efficient, but also maintenance free.
- (b) Care should be taken with placement of glazing, particularly to the west and east (sun low in sky, difficult to control causing glare across the water surface).
- (c) Windows to the north can be controlled via the use of horizontal sun shades, but the light received can be very harsh.
- (d) South light however has the advantage of being a softer diffused light source without the problems of glare or harshness.
- (e) Light from above is preferable as it reduces surface reflection.

**4.2                Lighting Level**

- (a) Lights should generally be located evenly throughout the pool hall to eliminate shadows to the edges of the pool tank. This is less of a problem with 'wet deck' pools.
- (b) For recreational use 300 lux illumination levels are adequate, however 600 lux should be provided for competition purposes.
- (c) If television broadcasts are planned then levels of 1000 to 10,000 lux or higher are required. Reference should also be made to AS 2560.2.5, AS 1680.2.1 and the FINA Handbook.

**4.3                Glare**

- (a) All glare across the water surface should be reduced to a minimum. Not only from the safety aspect of being able to observe all underwater activity, but a glare free environment is highly desirable for competition use.
- (b) The shape of the pool hall and its ceiling height can also contribute to glare. A low ceiling height makes it very difficult to achieve even light levels across the water, without placing the lamp over the water surface (see also maintenance Section 4.4 below).

#### 4.4

#### Artificial Light

(a) Colour

The colour of light within a pool hall should be correctly balanced. The hall should not only feel comfortable and warm but should also allow natural skin colour to be determined.

(b) Maintenance

Generally, lamps should not be placed directly over the water surface as this can make replacement of globes difficult. A number of mechanical systems of lowering and/or sliding the lamps to the concourse areas, have been used, but serious consideration should be given to corrosion. There are a number of alternative methods currently in use including asymmetric, high bay fittings.

(c) Efficiency

Care should be taken in the selection of any lamp type with its energy usage. The efficiency of any lamp is seriously affected if the ambient air is contaminated and allows dirt to build up on the lamp lens. Generally temperature does not have any effect, but high humidity can cause corrosion within the lamp itself.

**1. TITLE WATER SLIDE (FLUME) DESIGN****2. DATE ISSUED** 1 November 1997, ISSUE 1**3. PURPOSE** To establish safety guidelines for the design of water slides and flumes in aquatic facilities.**4. DEFINITION**

A water slide is defined as a slide which begins more than 2 m above the surface of the landing pool. It often may use water to reduce rider friction and facilitate movement. In some countries the term flume is used to describe certain types of water slides. A water slide may be provided singularly, or as part of a multiple unit; and may be straight or incorporate bends and curves in any number of configurations. Australian Standard AS 3533 also refers.

**5. DESCRIPTION****5.1 General**

The design of any water slide or flume should meet relevant legislation applicable to the State and locality in which it is installed.

**5.2 Tower and Stairs**

- (a) Straight run staircases with landings should be used. Spiral staircases are considered inappropriate.
- (b) Stairs should be wide enough to allow easy passage of two people with hand rails on both sides (refer AS 1428.1).
- (c) Careful consideration should be given to reduce the possibility of falls from towers. Effective railing and barriers should be used (refer AS1657).
- (d) The structure should be designed and constructed to be easily capable of withstanding maximum loadings, giving full consideration to queuing (refer AS1657).

**5.3 Launch Area**

- (a) All floors and steps should be well drained, slip resistant and non-abrasive with similar considerations to those of the pool concourse as detailed in FD2.
- (b) Suitable handholds should be provided at the entry (summit) to enable riders to position themselves for descent.
- (c) The entry area should be designed so that running starts are avoided.
- (d) The landing should be large enough to comfortably accommodate a supervisor and a rider.

**5.4 Speed**

A maximum speed of 6.5m per second is recommended. Attention should be given to the location and radius of bends and drops, (steep decline) in areas of higher speed.

**5.5 Height and Length**

The ratio of height and length of a slide is a major factor affecting speed. A maximum gradient of 1:9 is recommended. Note: This does not apply to speed slides where there are no deviations from the straight line.



## 5.6 Bends

It is recommended that sharp turns in quick succession, especially in conjunction with accelerator drops, be avoided.

## 5.7 Water

- (a) Sufficient water flow should be provided to reduce friction.
- (b) Water should be treated and maintained in accordance with local health regulations.

## 5.8 Slide Exit and Landings

- (a) A reasonable length of the end section of the slide should be specifically designed to reduce speed, and eject the rider parallel to the surface of the water.
- (b) Where possible the end of the slide should deliver the rider as near as is practicable to the surface of the landing pool.
- (c) Where possible, methods involving hydrostatic braking such as aqua-catches should be used in preference to splash pools.
- (d) The slide exit should have a bull nosed lip to reduce risk of injury from rider falling back onto slide.

## 5.9 Splash Pools

- (a) Where splash pools are part of the main pool, some form of physical barrier should be placed so that swimmers do not interfere with or impede the path of a water slide rider (This barrier should not, in its own right, present a hazard).
- (b) The splash pool should be sufficiently deep to avoid a rider from striking the bottom. Slide exits up to 150mm above the surface of the water would require at least 1m in depth. Slides with higher exits, or faster exit speeds may require deeper water.
- (c) There should be a 200mm slide overhang from the edge of the pool at the landing end.
- (d) The slide should be positioned such that it is at least 2m clear of any obstructions each side (including walls). For multiple slides, there should be at least 2m between each landing area, and all slides should enter the splash pool in parallel and from the same direction.
- (e) The splash pool should be clear of any obstructions for at least 6m in the direction of travel.
- (f) The pool bottom should be a slip resistant non-abrasive surface, and should not contain any pool grates or drains within the landing area.
- (g) Exit points should be clearly labelled, so that riders can quickly orientate themselves and leave the landing area.

## 5.10 Visibility

- (a) The entire slide and equipment should be designed such that minimum lifeguard numbers are required to supervise the area.
- (b) Suitable signage which details instructions for use and warnings should be displayed prominently.

## 5.11 Communication

Consideration should be given at the design stage to the intended methods of communication between staff supervising the Water Slide eg, line of sight to another lifeguard, telephones, remote controls, public address systems, intercoms. Excessive noise at entry and exit points may need to be considered.

**1. TITLE           DESIGN OF SPA POOLS****2. DATE ISSUED** 1 November 1997, ISSUE 1**3. PURPOSE**     To establish safety guidelines for the design of spa pools.**4. DEFINITION**

Spa pools are heated pools of water, with equipment for creating turbulent water. Spa pools are normally used for passive recreation and relaxation rather than swimming.

**5. DESCRIPTION**

- 5.1**           The design of spa pool tanks should be consistent with guideline FD1 - Design of Pool Tank. Additionally, spa inlets, outlets and piping should comply with AS2610.01.
- 5.2**           (a) Spa pools should be located where supervision can be undertaken.  
(b) Spa pools should be considered in conjunction with the same level of supervision as swimming pools.
- 5.3**           (a) Indoor spa pools should be provided with adequate ventilation, taking into account high evaporation and condensation rates, in accordance with AS1668.2.  
(b) Ceilings, walls and pedestrian traffic flow surfaces should be of a moisture impervious finish.
- 5.4**           (a) The maximum recommended water depth is 1.1m.  
(b) The maximum recommended seat depth is 600mm from the waterline.  
(c) Consideration should be given to the displacement of water by users of the spa.
- 5.5**           (a) Design of steps and ladders should be in accordance with AS2610.1.  
(b) Steps and ladders should also comply with FD5.  
(c) The location of underwater obstacles such as steps and ladders may not be visible in the turbulent water and so should be clearly indicated through the use of handrails and signage.
- 5.6**           (a) An adjustable thermostat may be used to control the temperature of the water. It should have a range not exceeding 40 degrees celsius.  
(b) A second thermostat should be provided, which has a manual reset, and which will prevent users from being exposed to temperatures in excess of 45 degrees celsius.
- 5.7**           (a) An emergency stop alarm device should be located adjacent to the spa which on activation will stop all circulation (blowers and filtration) in the spa pool.  
(b) The device should rapidly alert staff to its activation by way of audible and visual signals, and should be clearly labelled to indicate its purpose.  
(c) This device should only be able to be reset by staff.

5.8 (a) At all times, water filtration plant should be capable of turning over the volume of the spa pool at least once every 30 minutes.

(b) Water quality should be maintained within local statutory requirements.

5.9 Air blowers and jets used to create turbulence in the water should have a 'shut down' period every 15 minutes. This is to reduce excessive use of the spa, and to assist in supervising the full spa tank.

5.10 Signage relating to guest usage should comply with AS2610.1, and be consistent with supervision guidelines.

5.11 **Drainage**

(a) The spa pool should be fitted with drain(s) to allow the tank to be completely emptied.

(b) The drains and filter returns should be fitted with lint traps.

5.12 **Automatic Shutdown - Entrapment**

(a) The filtration plant and equipment should have fitted a pressure monitoring device which activates an automatic shutdown. The limit of the pressure monitoring device should be set to avoid injury from entrapment of foreign objects in suction inlets.

(b) There should also be no residual suction on automatic shutdown.

**1. TITLE            DESIGN OF FIRST AID ROOM****2. DATE ISSUED** 1 September 1999, ISSUE 1**3. PURPOSE**     To establish a standard of design for First Aid rooms at swimming pools.**4. DESCRIPTION**

Note: The provision of First Aid rooms depends on the size of the facility, and the number and distribution of people typically occupying the facility. Smaller facilities may use a room not dedicated to the provision of First Aid. Larger facilities may require more than one First Aid room, depending on the number and distribution of people using the facility.

**4.1                Room Description****4.1.1**            The size of the room provided should be of appropriate size and configuration for the usage of the facility.

(a) A small facility, which accommodates up to 500 people, should provide a room with a medical examination couch and sufficient room for a First Aider to apply treatment to a casualty sitting or lying on the medical examination couch.

(b) Medium sized facilities which accommodates up to 1000 people should provide a dedicated First Aid room of at least 15 square meters which allows access by First Aiders carrying a stretcher.

(c) Large facilities accommodating up to 2000 people should provide a dedicated First Aid room of at least 35 m square with two medical examination couches and appropriate access for each.

**4.1.2**            (a) Where more than one medical examination couch is provided, sufficient space should be provided so that treatment of a casualty on one medical examination couch does not interfere with the treatment of a casualty on any other medical examination couch.

(b) Medical examination couches should be separated by a curtain, which will offer greater privacy.

**4.1.3**            The room should be well illuminated and ventilated.**4.1.4**            First Aid room temperature should be suitable in assisting with maintaining normal body temperature.**4.1.5**            The room should have a wash basin with hot and cold water.**4.1.6**            The room should have a telephone with a list of emergency numbers posted close by.**4.1.7**            The room should have a minimum of one electrical general-purpose outlet (GPO).**4.1.8**            The room should have lockable storage for special medication, items used for external wound treatment.**4.1.9**            The room should have a workbench for the preparation, or the cleaning and sterilisation, of items used in First Aid treatment.**4.1.10**          The room should have flooring which is washable and slip resistant. A drain may be provided to ease the cleaning of spills of materials or body fluids.

## 4.2 Access

4.2.1 The room should allow access by casualties requiring assistance including carers to enter and leave the room. This includes cases where casualties are carried into the room on a stretcher or in a wheelchair.

4.2.2 There should be double door access on the outside wall of the building, to an ambulance/car bay.

4.2.3 (a) The room should be located close to a toilet, which allows use by a casualty suffering a temporary disability or with a major disability.

(b) This should be a disabled or family change area, which allows unisex access.

## 4.3 Multi - Purpose Rooms (Existing Facility)

Note: If the room used for First Aid is a multi-purpose area, it should:

4.3.1 allow sufficient space for the provision of First Aid regardless of any other function the room might serve;

4.3.2 offer adequate privacy;

4.3.3 allow access to both sides of a casualty on a stretcher.

## 4.4 Large Facilities

If the swimming pool is a part of a major building or a multi building complex the First Aid Room should be:

(a) readily accessible.

## 4.5 Room Signage

The First Aid room entrance should be easily identified by:

(a) a white cross on a green background;

(b) and the words First Aid.

## 5. REFERENCES

Guideline FA4, Content of First Aid Rooms Guideline FD18, Design for Special Needs Populations Sports Council Technical Unit for Sport (1991) Designing for Safety in Sports Halls - Part 8: First Aid Provision. (Datasheet 60.8) London: Sports Council. Health and Safety Authority, Victoria (1995) Code of Practice: First Aid in the Workplace. Melbourne: Health and Safety Authority, Victoria.

**1. TITLE            DESIGN OF STARTING BLOCKS (STARTING PLATFORMS)****2. DATE ISSUED** 1 November 2002, ISSUE 2**3. PURPOSE**     To establish safety guidelines for the design and placement of starting blocks (starting platforms).**4. DEFINITION** Starting Blocks, also referred to as starting platforms or diving blocks (not preferred) are raised platforms at the edge of a swimming pool, located in line with the mid point of each swimming lane, for the purpose of competitive swimming water entry and for housing the backstroke start handgrips.**5. DESCRIPTION****5.1                Starting Blocks (Starting Platforms)**

5.1.1            Starting blocks should not be permanently located where water is less than 1200mm deep and should be removed or isolated for recreational swimming.

5.1.2            Where removable starting blocks are used the recess mountings should not be hollow and should be flush with the concourse.

5.1.3            Where provided, starting blocks should be stable when mounted or when gripped from within the water.

5.1.4            Where starting blocks are provided, there should be a minimum water depth of 1200mm for a distance of 5000mm from the pool wall.

Note: Refer Guideline SU24, section 5.3 and FINA Handbook

**5.2                Starting Block Design**

5.2.1            Starting block steps and tops should have slip resistant surfaces meeting AS/NZS 3661.1.

5.2.2            The top surface of starting blocks should:

(a) be no greater than 750mm above the water surface; (front edge of starting block)

(b) be at least 500mm x 500mm in area;

(c) not be sloped more than 10 degrees toward the water.

5.2.3            Handgrips should not protrude beyond the pool wall.

5.2.4            Recessed pool concourse mountings (sleeves) for removable (portable) starting blocks should:

(a) not be hollow;

(b) be flush with the pool concourse;

(c) not have sharp edges.

5.2.5            Starting blocks should be stable when:

(a) in situ;

(b) mounted by a person preparing to enter the water;

(c) gripped from the water.

Note: For further information on design of starting blocks refer to FINA rules and regulations.

### 5.3 Use of Starting Blocks

5.3.1 Starting blocks are only required by persons starting in a swimming based competition or training for a swimming based competition that may include the following.

- (a) Swimming and related (triathlon, distance swimming) squad training
- (b) Swimming instruction
- (c) Swimming competitions/meets for swimming clubs, schools and other groups
- (d) Lifesaving classes.

5.3.2 In pools where starting blocks are required they should be provided:

- (a) Following the development of the criteria for the intended use of the pool
- (b) In accordance with FINA Regulations, and
- (c) In consideration of the requirements of Guideline SU 24 Safe Water Entry For Competitions (Competitive Dive Starts).

### 5.4 Maintenance of Starting Blocks

5.4.1 Starting blocks should be inspected regularly to ensure they are safe and fit for use.

5.4.2 Starting blocks deemed in an unsafe condition should be isolated and logged for repair.

### 5.5 Isolation of Starting Blocks Preventing Use

5.5.1 Isolation of starting blocks should not introduce any further risk to facility users.

5.5.2 Isolation may be in a variety of forms eg, physical barriers or warning signage and supervision.

## 6. REFERENCES

Guideline FD 6 Swimming Lane Design

Guideline GO 4 Hire of Facilities

Guideline SU 24 Safe Water Entry For Competitions (Competitive Dive Starts)

Guideline PR 9 Teaching of Water Entry and Diving FINA Handbook

**1. TITLE BATHER SUPERVISION****2. DATE ISSUED** 1 July 1996, ISSUE 3**3. PURPOSE** To establish a minimum ratio of qualified people per number of bathers at swimming pool operating times and in particular recreational swimming times.**4. DESCRIPTION****4.1 Minimum on Duty**

- (a) A minimum of two people should be on duty at any one time.
- (b) At least one of these people should be a lifeguard qualified to the RLSSA Pool Lifeguard standard and be capable of supervising the water.
- (c) The second person qualified to a minimum of First Aid, CPR and RLSSA Bronze Medallion should be on site and easily contactable in an emergency.
- (d) While 16 years is the minimum age for a person to be a qualified lifeguard, management should be mindful of the skills and maturity required for a person to be in-charge of a swimming pool. It is recommended that a person of a minimum of 18 years be in-charge of a swimming pool.  
(refer also Guideline LP1)

**4.2 Minimum Supervision**

- (a) A minimum of one qualified lifeguard should be supervising, facing and watching the people in the water at all times.
- (b) Sufficient lifeguards should be provided to ensure the body/s of water and people therein can be supervised effectively.

**4.3 Line of Sight**

Lifeguards should be in a position to maintain supervision of the water at all times. It is recognised that lifeguards need to be mobile and a clear line of sight is a significant requirement.

**4.4 Ratios**

- (a) The recommended minimum ratio of lifeguards to people in the water is one lifeguard for up to 100 people.
- (b) Where recreational activity is undertaken eg, inflatable toys, then this ratio may require a greater number of lifeguards.
- (c) Facility operators will be required to make a judgement regarding the number of qualified people required at the facility depending upon anticipated attendances, and based on a range of factors such as:
  - weather
  - holidays
  - size of pool, number of pools, and layout of pools
  - average attendance
  - swimming capabilities
  - special needs individuals and groups





#### 4.5

#### Ratios For Other Facilities

- (a) Multiple or Irregular Shaped Pools Sufficient lifeguards should be provided to effectively supervise the surface areas of all pools at a facility. All areas of the water including the pool floor must be scanned and scrutinised on a regular basis.
- (b) Diving Towers (refer also Guideline SU12) Diving towers and their water area should be supervised throughout use to reduce the high risk of accidents.
- (c) Water Slides (flumes)
  - (i) As with diving towers, use of water slides should be regulated to avoid multiple use or queuing on narrow staircases, and to prevent accidents.
  - (ii) Water slides should always be supervised at water level in case of an accident.
  - (iii) Supervision may also be necessary at the entry to the water slide for safety or regulatory reasons.
  - (iv) Head first riding of water slides should not be permitted.
- (d) Wave Pools (refer also Guideline SU14) Special attention must be given to wave pools as the appearance of waves may result in patrons previously within their depth suddenly being out of their depth and in potential danger.

The recommended minimum ratio of lifeguards to people in the water during wave motion is one lifeguard for up to 40 people.
- (e) Play Equipment

Play equipment, eg, giant inflatables, tarzan ropes, flying foxes and climbing ropes may require an increased level of supervision.
- (f) Rivers
  - (i) Lazy and rapid rivers may require additional supervision depending upon river design, water flow rates and bather numbers.
  - (ii) Rivers should be able to be isolated as necessary by pool supervisors.

**1. TITLE ACCREDITATION FOR POOL LIFEGUARDS****2. DATE ISSUED** 1 July 1996, ISSUE 3**3. PURPOSE** To establish a minimum standard of accreditation for those involved in the supervision of recreational swimming programs at swimming pools whether this be in a paid or voluntary capacity.**4. DESCRIPTION****4.1 Recruitment Qualifications**

- (a) The minimum standard for initial employment should be the current RLSSA Bronze Medallion or Surf Life Saving Australia (SLSA) Bronze Medallion. Where the latter award only is held, employees should undergo assessment of their abilities in stillwater techniques as listed in the RLSSA Bronze Medallion.
- (b) As neither organisation's Bronze Medallion is specifically a pool lifeguarding qualification, the person with this qualification only should not be left in sole charge of recreational swimming at a facility and should not be regarded as fully qualified.
- (c) New employees who are not holders of the RLSSA Pool Lifeguard Award and are required to supervise swimming pools should not supervise alone and should be required to qualify to RLSSA Pool Lifeguard Award standard within two months of employment.

**4.2 Qualifications**

- (a) The appropriate minimum qualification for a pool lifeguard/pool attendant is the RLSSA Pool Lifeguard Award.
- (b) The RLSSA Pool Lifeguard Award is current for a period of twelve months and should be re-examined by an external RLSSA Pool Lifeguard Examiner on an annual basis.
- (c) These requirements should be included in the job specifications of lifeguards.

**4.3 Facility Specific Qualifications**

- (a) As every facility has its own design, format and emergency procedures, qualifications for lifeguards/pool attendants should include elements which are specific to the facility in which the person is to work, eg, knowledge of the emergency procedures or oxygen equipment applicable at the pool.
- (b) Should the lifeguard change his or her place of employment, those aspects of the qualification which are facility specific may be required to be retaken.

**4.4 Check on Accreditation**

It is the employer's responsibility to check:

- (a) the status of an individual's qualifications.
- (b) the currency of the qualification.
- (c) the ability of the person to perform any activities within the qualification.

**1. TITLE** LIFEGUARD IN - SERVICE TRAINING**2. DATE ISSUED** 1 July 1996, ISSUE 2**3. PURPOSE** To establish a minimum standard of ongoing training for those responsible for lifeguard supervision of recreational swimming.**4. DESCRIPTION****4.1 Frequency**

All lifeguards should participate in regular organised training sessions to ensure maintenance of necessary skills and competencies. The frequency of these training sessions may depend on such factors as:

- number of employees at pool
- length of operating hours
- number of hours a lifeguard is employed each week
- nature of training
- the employees' competency standards

**4.2 Facility Specific Training**

(a) Training sessions should be held at, or relate directly to, the facility in which the person is employed.

(b) Exception to this may be in relation to the theoretical or general practical activities, eg, oxygen equipment or resuscitation training.

**4.3 Content**

The content of training sessions should be varied and cover all aspects of the lifeguard role. However, sessions may include:

- revision and practice of emergency procedures
- practice of initiative assessment of and response to simulated incidents
- revision of lifesaving skills
- resuscitation
- oxygen equipment
- First Aid
- retrieving a person from the deepest part of the pool
- special needs populations
- public relations.

It is recommended that training sessions regularly include practical water work.

**4.4 Training Log**

Management should ensure that a record of all training sessions is maintained at the place of employment.

This record should include the following details:

- date of training session
- person instructing/leading the session
- those attending
- content of the training session
- comments on employees unable to complete aspects of the training.

**1. TITLE**            **LIFEGUARD CLOTHING AND EQUIPMENT**

**2. DATE ISSUED** 1 July 1996, ISSUE 3

**3. PURPOSE**        To establish a guideline for personal clothing and equipment for pool lifeguards.

**4. DESCRIPTION**

**4.1**            **Type**

(a) Clothing provided for pool lifeguards should be functional and allow freedom of movement if entry into the water is required, eg, polo shirt and shorts.

(b) The clothing should also be applicable to the environment at the centre.

**4.2**            **Identification**

The clothing should be distinctive in colour and design to enable patrons and fellow staff to easily identify the person or person's on duty. Red and yellow are recognised as lifeguard colours in a number of countries including Australia.

**4.3**            **Avoidance of skin cancer**

All lifeguards in outdoor pools should be required to wear a shirt, preferably long sleeved, sunglasses (an exception may be while communicating with people), broad brimmed hat and SPF 15+ broad spectrum sunscreen. This is not only a personal safety measure but provides an important role model for users

**4.4**            **Footwear**

(a) Lifeguards should wear footwear which is suitable for the task being performed.

(b) Thongs are not regarded as suitable footwear as they may not be safe when urgent action is required.

(c) Relevant occupational health and safety regulations should be adhered to.

**4.5**            **Protective Equipment**

All lifeguards should carry a minimum of a resuscitation pocket mask, as approved by Australian Standard AS 4259, a pair of disposable gloves to provide protection from cross infection of diseases when performing resuscitation or elementary First Aid, and a signalling device such as a whistle.

**1. TITLE**            **LIFEGUARD DUTY PERIODS**

**2. DATE ISSUED** 1 July 1996, ISSUE 2

**3. PURPOSE**        To provide guidance on the length and duration of duty periods for pool lifeguards to ensure maximum effectiveness of supervision.

**4. DESCRIPTION**

**4.1**                **Role of Management**

- (a) The length and nature of duty spells is very much dependent on the environment in which the person is working. It is incumbent on the centre management to ensure that duty spells are organised in a way which provides adequate safety cover for users.
- (b) Management should be conscious of the safety implications of complacency, fatigue and lack of concentration that results from long working hours.
- (c) Regular rotations or changes in duty or supervision area assist in avoiding lapses in attention or occasional involuntary rest periods.

**4.2**                **Change in Activity/Supervision Points**

The maximum period for a person to undertake any particular activity will depend upon the environment in which the duty is taking place. Ideally a lifeguard should to change his or her point of supervision or duty activity once every fifteen minutes, and no longer than once every thirty minutes.

**4.3**                **Breaks**

Lifeguards should be provided with regular breaks from duty throughout the day to ensure that attention span is retained.

**1. TITLE            EMERGENCY SIGNALS****2. DATE ISSUED** 1 July 1996, ISSUE 2**3. PURPOSE**    To provide guidance on the methods of gaining the attention of and communicating to appropriate personnel in the event of an emergency.**4. DESCRIPTION****4.1            The Signal**

- (a) It is important that all pools establish prearranged emergency communication signals, eg, siren, whistles etc.
- (b) The nature of the signals should be included in the emergency procedures section of the operations manual.
- (c) Emergency signals should only be used when an emergency occurs, except at training sessions.
- (d) The signals should be tested and practised at regular training sessions.

**4.2            Type of Signal**

- (a) The type of signal used will depend upon the design and configuration of the complex, eg, size and accessibility are major considerations. Examples of emergency signals include:
  - siren
  - whistles
  - two way radio communication
  - telephone links between sections of a complex
  - public address.
- (b) If an electronic system is used a manual back up system for use during periods of power failure should be available, eg, megaphone.
- (c) Such equipment must be readily available in good working order and accessible by all on duty staff.

**4.3            Isolated Areas**

Centres with isolated areas, eg, First Aid room, plant rooms or store rooms, should have direct emergency signal communication with the management officers, in order that emergency assistance can be provided quickly and efficiently.

**1. TITLE DESCRIPTION OF LIFEGUARD DUTIES****2. DATE ISSUED** 1 July 1996, ISSUE 2**3. PURPOSE** To establish a guideline for lifeguard duties.**4. DESCRIPTION**

- 4.1** (a) The aim of all lifeguards should be to provide adequate supervision of the day to day operations of swimming facilities to ensure safety of patrons.
- (b) Concentrated observation of the pools and pool users must be maintained in order to anticipate problems eg, rowdy behaviour, or someone swimming into the path of a diver and to identify and respond quickly to any emergency.
- 4.2** Pools and immediate surrounds must be supervised to ensure that:
- there is no running
  - there is no pushing
  - there is no diving or jumping into shallow water
  - there is no abusive or offensive language
  - there is no offensive behaviour
  - users are protected from unruly behaviour and dangerous actions
  - users abide by local laws pertaining to the centre, and any other regulations imposed by the management
  - users are enjoying their desired activity in a pleasant, healthy and safe environment.
- 4.3** Lifeguards should carry out preventative actions, rescues, and initiate other emergency action as and when necessary.
- 4.4** Lifeguards may be required to give First Aid to any person on the premises in the event of an injury or illness.
- 4.5** Lifeguards should co-ordinate the use of pool space for various user groups and ensure allocated areas are clearly marked with signs.
- 4.6** The duties of lifeguards are those specifically identified as necessary for the prevention of injury and the saving of life. Such duties will normally be undertaken by lifeguards who may also be required to fulfil other tasks such as customer service, cleaning and maintenance activities. However, while rostered for direct pool supervision the lifeguard should focus on the safety of bathers in or around the water.
- Note: In order to carry out these duties satisfactorily, lifeguards should remain alert and apply common sense in assessing situations.

1. **TITLE** SUPERVISION OF CHANGING/TOILET AREAS

2. **DATE ISSUED** 1 November 1997, ISSUE 3

3. **PURPOSE** To provide guidance on the supervision of changing toilet areas.

4. **DESCRIPTION**

4.1 The supervision of changing/toilet areas, which include shower and toilet blocks, is an important duty.

4.2 The areas should be checked and inspected regularly to:

(a) ensure the safety of patrons.

(b) to ensure that they are maintained in a hygienic and clean condition.

(c) to reduce likelihood of assault and theft.

(d) to monitor hot water taps left on.

4.3 Safety hazards identified during routine inspections should be isolated, sign posted and marked for repair following normal operating procedures.

4.4 Where specific policies exist on the use of change facilities (eg, local laws) signage outlining the Centre's policy should be displayed prominently.



**1. TITLE** ENCOURAGING RESPONSIBLE BEHAVIOUR

**2. DATE ISSUED** 1 July 1996, ISSUE 2

**3. PURPOSE** To provide advice on the ways in which swimming pool management and staff should encourage responsible behaviour.

**4. DESCRIPTION**

- 4.1 Wherever possible, the management and staff of a facility should take a positive approach to the encouragement of responsible behaviour. It should be remembered that the staff are available to help users enjoy the facility, not prevent enjoyable activity.
- 4.2 Communication on modifying behaviour should be made with users, not to them.
- 4.3 Signage on appropriate behaviour should be in simple, positive, easily understood language and using symbols when ever possible.
- 4.4 The example and encouragement given by staff is as important as the provision of appropriate signage in encouraging responsible behaviour.

**1. TITLE** PARENTAL SUPERVISION

**2. DATE ISSUED** 1 July 1996, ISSUE 1

**3. PURPOSE** To outline the guidelines for entry for children to swimming pools and the expected parental behaviour.

**4. DESCRIPTION**

- 4.1 Children under 10 years should not be allowed entry unless under supervision of a person 16 years or older.
- 4.2 Parents or guardians (including those persons described in Section 4.1 above) should supervise their charges at all times and as such should be dressed ready for action including unexpected entry to a pool.
- 4.3 Signage or literature indicating the parental supervision policy of the pool is recommended.

1. TITLE SPECIAL NEEDS POPULATIONS - SUPERVISION

2. DATE ISSUED 1 July 1996, ISSUE 1

3. PURPOSE To provide guidelines on the safe supervision of special needs populations using swimming pools.

4. DESCRIPTION

4.1 Staff should be alerted to the presence of users with impaired mobility.

4.2 Training

4.2.1 Staff should be trained to deal with the range of special needs populations who are regular users of the swimming pool.

4.2.2 The training should include:

- (a) Safe manual handling techniques.
- (b) Communicating with patrons with special needs.
- (c) Removal of patrons with special needs during emergencies.
- (d) Recognising specific behavioural movements of special needs patrons.

4.3 Management should have policies in relation to the physical assistance of special needs patrons.

4.4 Care givers accompanying special needs patrons need to be aware of their role and responsibilities as compared to those of the swimming pool staff.

**1. TITLE SUPERVISION OF DIVING TOWERS AND SPRINGBOARDS****2. DATE ISSUED** 1 July 1996, ISSUE 2**3. PURPOSE** To provide guidance for the safe use of diving towers and springboards.**4. DESCRIPTION**

- 4.1** (a) The diving tower(s), platform(s) and springboard(s) should be inspected and checked as safe prior to use on each day of operation.  
(b) Faulty equipment should be isolated, signposted and reported for repair under normal operating procedures.
- 4.2** (a) Diving towers and springboards should be supervised at all times they are open for use.  
(b) The supervisor of lifeguard should be trained to recover a person from the deepest pool.  
(c) Swim fins can be used by supervisors in an emergency to aid submerging to deep water.  
(d) Access to the diving tower should be restricted except during periods when the tower is in use for diving.  
(e) Queuing and congestion on narrow stairways should be avoided.
- 4.3** A water spray using recirculated pool water where available should be used for diving competition in order to avoid distraction of glare and reflection from natural or artificial light, and to provide diver recognition of the surface of the water.
- 4.4** (a) Entry to the diving area from poolside should not be allowed when the diving boards are in use, thus avoiding the risk of a collision.  
(b) Entry off the tower or spring board should only be allowed when the previous user is exiting or has exited the pool.
- 4.5** Signs which encourage safe use of diving towers and springboards should be displayed.
- 4.6** (a) When divers are using a diving tower and springboard which enter the same pool, divers on the tower should have the right of way.  
(b) Recreational swimmers should only use one board or platform in any one session.  
(c) Springboards and towers located on opposite sides of a diving pool should not be used at the same time.
- 4.7** Particular care should be taken in open air pools on windy and busy days to avoid injury.
- 4.8** Water clarity in diving pools should be regularly monitored.
- 4.9** (a) Only one diver should be on any board or platform at any one time.  
(b) A maximum of two (2) bounces per dive from a springboard should be allowed.
- 4.10** (a) The diving pool must be free from any obstruction eg, lane ropes, polo nets when in use for diving.  
(b) Where diving boards are installed at the deep end of a multi use pool, there must be at least 2.5 metres of clear space on each side of the board.



**1. TITLE INFLATABLE PLAY EQUIPMENT**

**2. DATE ISSUED** 1 July 1996, ISSUE 2

**3. PURPOSE** To provide guidance in the use and supervision of inflatable play equipment.

**4. DESCRIPTION**

- 4.1 Various types of inflatable play equipment will require specific supervision, given that they restrict vision through the water, attract congregating people, may be foreign to some bathers and increase the potential risk.
- 4.2
  - (a) Where practical, large inflatable toys should be anchored to prevent them moving in the pool.
  - (b) The method of anchorage should minimise any hazard to users.
  - (c) Attention should be given to the possible risks of entanglement in anchoring ropes.
- 4.3 All floating equipment should be carefully positioned so that users cannot fall from equipment to the pool side or strike the pool edge.
- 4.4 The equipment should be in sufficiently deep water so that a swimmer who falls off will not be injured by striking the pool bottom.
- 4.5 The use of large inflatable play equipment during peak bather loads should be avoided.
- 4.6 The water area into which the inflatable play equipment is to be located should be free of lap swimmers thus reducing potential for injury.
- 4.7 Air hoses, air pumps and electrical cords should be positioned to avoid the risk of trips and falls.
- 4.8
  - (a) Electrical appliances and cords should be kept away from water and swimmers at all times.
  - (b) Electrical General Purpose Outlets (GPO's) located on the pool deck and into which are connected air pumps should be connected to an earth leakage protection circuit.
- 4.9 Inflatable play equipment should be kept under constant direct supervision at all times.  
(refer also Guideline SU1)
- 4.10 At the end of each use the inflatable should not be left unattended or unsupervised while in a usable condition.

1. TITLE SUPERVISING WAVE POOLS

2. DATE ISSUED 1 July 1996, ISSUE 1

3. PURPOSE TO ESTABLISH GUIDELINES FOR THE SUPERVISION OF WAVE POOLS.

4. DESCRIPTION

- 4.1 (a) Wave pools will require special supervision with lifeguard to bather ratios greater than for conventional pools. The recommended minimum ratio of lifeguards to people in the water during wave motion is one lifeguard for up to 40 people (refer also Guideline SU1).  
(b) Particular wave patterns may require additional supervision.
- 4.2 Lifeguard access to and from all sides of the wave pool should be provided.
- 4.3 **Wave Start Up**  
(a) An audible and visual warning should be activated at least one minute prior to the commencement of any wave motion to warn people using the pool in calm conditions.  
(b) Ideally a verbal announcement using a loud hailer or public address (PA) system should also be given prior to the commencement of waves allowing adequate time for pregnant women, frail or injured persons or non - swimmers to return to shallow water or to vacate the pool.  
(c) All other water features should be stopped during wave motion.  
(d) Lifeguards should be alert as the alarm may encourage patrons to run to the wave pool.
- 4.4 Access to the pool when the waves are operating should only be allowed from the beach entry area.
- 4.5 Jumping or diving into or onto waves should not be allowed.
- 4.6 Controls for the operation of the wave pool including emergency stop button/s should be located on the pool deck allowing lifeguard operation while supervising the pool.
- 4.7 (a) Handrails should be checked regularly for tightness as they may become loose due to greater loadings created by swimmers movement in the waves.  
(b) Users should not be allowed to hang onto climb outs which should be left free for swimmers wishing to exit the pool.
- 4.8 Swimmers should be kept away from the wave generation wall during wave motion.
- 4.9 Flotation devices provided by management and where permitted, privately owned devices should only be used under strict supervision by lifeguards when there is no wave motion, and only during periods of low patronage.
- 4.10 The use of floating lines or ropes in the 'breaking zone' is not recommended.

- 4.11 The wearing of snorkelling equipment during wave motion is not recommended.
- 4.12 Wave motion periods are generally short lasting from 5 to 10 minutes every hour. Lifeguards should be alert and scanning for persons in difficulty or at risk including:
- the tired swimmer
  - the swimmer out of their depth during wave motion
  - the swimmer holding young children
  - the injured swimmer
  - the non-swimmer
  - the distressed swimmer.
- 4.13 (a) Overcrowding in wave pools is common and lifeguard to bather ratios should be increased to ensure adequacy of supervision. The recommended lifeguard to bather ratio is one to 40 (refer also Guideline SU1).
- (b) A crowd control procedure should be in place to allow not only a quick and orderly evacuation of the wave pool, but also a safe and orderly re-entry upon re-opening.

**1. TITLE SUPERVISION OF POOLS WITH MOVEABLE FLOORS****2. DATE ISSUED** 1 July 1996, ISSUE 1**3. PURPOSE** To establish guidelines for the supervision of swimming pools with moveable floors**4. DESCRIPTION**

4.1 Swimming pools with moveable floors require an increased level of supervision due to their flexible use and the changing depths.

**4.2 Depth Signage**

4.2.1 Depth signage must not be obscured and should be visible for all entry points.

4.2.2 Depth signage must be accurate and as such should be regularly checked and where necessary, calibrated.

**4.3 Varying Depth**

While the depth of the pool is in the process of change (moving of the floor):

(a) Bathers should be away from the pool edge and the pool wall when allowed to remain on the floor.

(b) Constant and direct supervision of the pool and surrounding concourse must be maintained.

(c) Depth signage should change simultaneous with the pool depth.

(d) It is recommended that the pool be vacated while the floor is being placed in a sloping profile.

**4.4 Floors at Water Surface**

Pool floors which can move to the surface of the water need special precautions.

(a) The floor may not be flush with the surrounding concourse and create a small step or lip upon which patrons may trip or fall.

(b) The floor should be of a high grade slip resistance.

(c) People should not be allowed off or onto the floor until it is stationary.

(d) People should be aware of and not trip on the grab rails normally used for deep water exits. Removable grab rails may be more appropriate in this instance.

**4.5 Maintenance**

4.5.1 Periodic maintenance is required on moveable floors, necessitating a SCUBA equipped maintenance person to enter the underside of the floor (in its raised position) through designated inspection hatches integrated into the pool floor. As such, special precautions are required.

4.5.2 Maintenance on moveable floors should be carried out by appropriately qualified and/or trained personnel:

(a) maintenance of the floor.

(b) hold a formal and current SCUBA diving qualification.

4.5.3 The underwater maintenance should be carried out by two persons; one to carry out the actual maintenance and the other to supervise the diver. The latter should never leave the pool side while the diver is below.

4.5.4 It is desirable that maintenance be carried out, outside normal operating hours, however where this is not possible appropriate signage should be displayed.



**1. TITLE SUPERVISION OF INTERACTIVE WATER PLAY EQUIPMENT****2. DATE ISSUED** 1 July 1996, ISSUE 1**3. PURPOSE** To establish guidelines for the supervision of patrons using interactive water play equipment.**4. DESCRIPTION**

Interactive water play equipment is essentially a children's playground with a water environment. As such youthful enthusiasm may increase risk for users with a consequential need for increased supervision.

- 4.1** When open for use, the pool and the equipment should be constantly supervised. The number of lifeguards on duty should be sufficient to safely supervise the area.
- 4.2** (a) The equipment should be inspected daily prior to use to identify faults which present a potential hazard to anyone using this equipment. Any identified hazards should be isolated.  
(b) Identified hazards should be isolated and reported for repair using normal operating procedures.
- 4.3** Structural recommendations stating maximum number of people on the equipment at any one time should be adhered to.
- 4.4** (a) A schedule of rules governing the use of the equipment should be established and monitored.  
(b) Rules may include
- maximum number of people
  - age ranges permitted
  - walking only allowed
  - parental supervision recommended.
- 4.5** (a) Isolation of any component or apparatus within the equipment may be necessary for a number of reasons including safety, maintenance and crowd control.  
(b) Isolation should be effective, safe and sign written.
- 4.6** Water pressure changes resulting in high pressure jets of water or water spraying onto the pool concourse or ceiling should be monitored and any necessary corrective action initiated.
- 4.7** Swinging apparatus should be supervised to limit the number of riders.
- 4.8** **Emergencies**
- 4.8.1** An emergency action plan relevant for the play equipment should be in place.
- 4.8.2** An emergency stop button with audible and visual alarm should be located in close proximity to the equipment.

**1. TITLE SUPERVISION OF FLOATING PLAY EQUIPMENT****2. DATE ISSUED** 1 July 1996, ISSUE 1**3. PURPOSE** To establish guidelines for the supervision of floating mats and rafts, and small inflatable play equipment.**4. DESCRIPTION****4.1 Floating Mats and Rafts**

4.1.1 Non inflatable mats and rafts constructed of high density and often hard buoyant material are increasingly used for casual water play.

4.1.2 Potential hazards with this type of equipment include:

- (a) use in deep water where non-swimmers may fall from equipment.
- (b) falling from equipment onto pool wall or concourse.
- (c) entrapment underneath the equipment.
- (d) large equipment or too many items may restrict lifeguard visibility.
- (e) user injury from hard equipment falling or being pushed into or onto the user.
- (f) allowing jumping from poolside onto the floating items.
- (g) use in shallow water where people may fall from equipment.

**4.2 Small Inflatable Play Equipment.**

4.2.1 Potential hazards with this type of equipment include:

- (a) All of the items listed in 4.1.2 above, except (e).
- (b) following a floating toy into deep water.
- (c) wearing a floatation aid and moving into deep water.

4.2.2 Pools should have a policy on whether they provide inflatable equipment or allow people to use their own.

4.2.3 Persons who use exhaled air to inflate equipment should be afforded extra supervision.

4.2.4 Inflatable equipment, in particular inner tubes, should be inspected prior to use to ensure there is no risk presented by an exposed inlet valve.

4.2.5 Bathers should not be permitted to jump or dive through inflatable rings.

4.2.6 Extra precaution and supervision may be required in outdoor pools, in particular on windy days.



1. TITLE SUPERVISION OF POOLS WITH MOVEABLE BOOMS (BULK HEADS)

2. DATE ISSUED 1 July 1996, ISSUE 1

3. PURPOSE To establish guidelines for the supervision of pools fitted with moveable boom(s) or bulk head(s).

4. DESCRIPTION

4.1 Positioning

4.1.1 Ideally the repositioning of a boom should be carried out when the pool is free of swimmers

4.1.2 An electrically controlled moveable boom should only be moved when the pool is free of swimmers.

4.1.3 The boom should be correctly anchored in place when in situ.

4.2 For pools with either singular or multiple booms, each body of water should be able to be supervised giving considerations to potential blind spots.

**1. TITLE SUPERVISION OF RIVERS****2. DATE ISSUED** 1 July 1996, ISSUE 1**3. PURPOSE** To provide guidance on the supervision of lazy and rapid rivers installed at modern leisure facilities.  
Note: This guideline does not relate to river rides as seen at many water parks.**4. DESCRIPTION**

Moving water provides an exciting environment for both children and adults. A lazy river is defined as water with flow rates less than 1.5 metres per second.

**4.1 Turbulence**

- (a) Turbulent water provides greater potential risk to bathers than does still water and as such requires increased supervision levels.
- (b) Turbulence can also create turbidity thereby reducing water clarity and lifeguard vision.

**4.2 Water Velocity**

- (a) Flow rates of water less than 1.5 metres per second are recommended as adults can normally maintain a footing when standing in waist depth water at these velocities.
- (b) Children may find water velocities above 1.0 metres per second unsafe under some conditions even in shallow water.

**4.3 Sightlines**

- (a) Due to the nature of river design, lifeguards will need to be mobile to maintain sightlines to bathers as they move in the river.
- (b) Restricted sightlines may require a higher level of supervision.

**4.4 Bather Movement**

- (a) Bathers should be requested to move through a river without stopping as a moving bather impacting a stationary bather may result in injury.
- (b) Bathers stopping within a river may be in difficulty and as such appropriate action may be necessary.

1. TITLE SUPERVISION OF WATER SLIDES (FLUMES)

2. DATE ISSUED 1 November 1997, ISSUE 1

3. PURPOSE To provide guidance on supervision for the safe use of water slides.

4. DESCRIPTION

4.1 Water slides should be inspected daily, prior to their operation.

4.2 Routine visual inspection may include:

- adequate water flow.
- integrity of connections between all sections.
- integrity of and fixing of slide mounting.
- smooth surface for length of slide.
- integrity of stairs and landings, including slip resistivity and non abrasive surfaces.

4.3 Mats should only be used on slide systems which have been specifically designed for this purpose.

4.4 Head first entry should NOT be permitted unless the slide system has been specifically designed for this purpose.

4.5 Riders

- (a) Water slide Supervisors should be familiar with the design specifications including rider size and rider numbers for each water slide.
- (b) Chain rides on slides should never be allowed.
- (c) Parents riding/holding children and infants should only be allowed at the management's discretion.

4.6 Running starts should not be allowed.

4.7 An effective rider spacing system should be established to ensure that person to person collisions, particularly in the landing area, are avoided.

4.8 Slides should be able to be isolated by pool supervisors when not in use.

4.9 An effective means of two way communication should be established between lifeguards supervising the water slide and other water spaces. These may include:

- Whistles
- Two way radios
- Telephones
- Remote controls
- Loud Hailers
- Hand Signals

4.10 Advisory signage should be provided for non-swimmers (and in some cases weak swimmers) where the depth of water in the landing area maybe out of their depth.

4.11 **Staffing**

- (a) Adequate levels of supervision should be provided ensuring control of rider entry and exit.
- (b) A rider should not be allowed to commence unless the supervisor is confident that there will be no risk of contact with a previous rider.
- (c) Supervisors stationed at the entry to a water slide and who are not required to enter a pool should have a minimum of a current Level 1 (basic) First Aid qualification, and be trained in water slide operating and emergency procedures.
- (d) Supervisors stationed at the exit of the water slide should hold a minimum of a current RLSSA Pool Lifeguard qualification or equivalent.

**1. TITLE SAFE WATER ENTRY FOR COMPETITIONS - COMPETITIVE DIVE STARTS****2. DATE ISSUED** 1 November 2002, ISSUE 1**3. PURPOSE** To establish safety guidelines for safe water entry (Competitive Dive Starts) for competitors during competitions and training for competition.**4. DEFINITION**

**4.1** Dive entry is defined as entry into water where the upper body (the hands, arms and head followed by the torso and lower limbs) enters first during activities, which are conducted under aquatic programming such as:

- Swimming and related (triathlon, distance swimming) squad training and competition
- Lifesaving classes.

**4.2** Competitive dive start is defined as entry into water from the side of the pool (flush or raised) or from a starting block for the purpose of starting a swimming based competition or training for a swimming based competition that may include the following:

- Swimming and related (triathlon, distance swimming) squad training;
- Swimming competition instruction;
- Swimming competitions/meets for swimming clubs, schools and other groups;
- Lifesaving classes.

**4.3** Starting blocks (starting platforms) are defined as raised platforms at the edge of a swimming pool, located in line with the mid point of each swimming lane, for the purpose of competitive swimming water entry and for housing the backstroke start handgrips.

**5. DESCRIPTION****5.1 Administration**

**5.1.1** All coaches and instructors or club officials should keep a record of competence of safe diving techniques, and competitive starts.

**5.1.2** Prior to participating in swimming events swimmers should be advised and warned of the water depth into which they may be required to enter during the course of any competition.

Note: Competition entry forms and promotional material should clearly advise competitors of the water depth in which competition(s) will be held.

**5.2 Instruction in Safe Water Entry (see also Guideline PR 9 in Program section)**

**5.2.1** All persons who wish to participate in swimming or like (eg, Lifesaving) competitions should be instructed in the principles of safe water entry and diving techniques, and competitive dive starts in a progressive education program under the instruction of an appropriately qualified Coach or Instructor.

- 5.2.2 All participants in swimming or like competition should receive appropriate instruction prior to participating in any swimming or like competitions.
- 5.3 Water Depths for Starts for Competition Swimming and Training (for trained competitors)
- 5.3.1 In water depth less than 900mm dive starts should not be permitted. All events should be commenced in the water.
- 5.3.2 (a) In water depths 900mm to 1000mm competitive dive starts may be permitted from concourse level to a maximum height above water of 200mm.  
(b) If concourse height is greater than 200mm above the surface of the water, starts should be commenced from in the water.
- 5.3.3 (a) In water depths greater than 1000mm and less than 1200mm competitive dive starts may be permitted from a maximum height above water of 400mm.  
(b) If concourse height is greater than 400mm starts should be commenced from in the water.
- 5.3.4 In water depths 1200mm or greater competitive dive starts may be permitted from a maximum height of 750mm.
- 5.3.5 (a) Starting blocks should only be available for use by those persons deemed as competent of executing a safe forward dive entry.  
(b) Only qualified swim coach, lifesaving instructor (excepting beach life saving), and swim instructor (eg, AUSTSWIM) should assess competence.
- 5.3.6 In swimming pools where recreational and competition/training or learn to swim is being conducted side by side, a warning sign should be prominently displayed adjacent to those areas in which dive entries are being performed by trained (in safe dive entry) swimmers; which reads. Warning: Dive Entries Permitted by Trained Swimmers Under Coaches Supervision Only', or similar, Note: A sign is not necessary where the pool is being used solely for competition swimming/training or learn to swim under supervision.
- 5.4 Use of Starting Blocks (Refer also FD 6 Swimming Lane Design) Starting blocks should be inspected prior to each use to ensure they are correctly fitted, sturdy and free of any potential hazards
- 5.5 Isolation of starting platforms In pools where non-complementary activities are being conducted, starting blocks should be isolated from use when not used for competition or instruction.

## 6. REFERENCES

- Guideline PR 9 Teaching of Water Entry and Diving  
Guideline FD 6 Swimming Lane Design  
Guideline FD24 Design of Starting Blocks (Starting Platforms)  
Guideline FD 3 Pool Depth Markings  
Safe Diving Practices: Competitive Applications (Keith McElroy), Jenny Blitvich et al, 1999.  
Dive depth and water depth in competitive swim starts, J Blitvich et al, 2000 FINA Handbook



**1. TITLE SUPERVISION DURING THUNDERSTORMS (LIGHTNING)****2. DATE ISSUED** 1 September 1999, ISSUE 1**3. PURPOSE** To provide guidance on safe practice for the supervision of outdoor swimming pools during thunderstorms and lightning conditions.**4. DESCRIPTION****4.1 Outdoor Swimming Pools**

4.1.1 The presence of lightning around an outdoor swimming pool is a safety risk. There are a number of factors that need to be considered, such as the surrounding environment and structure.

4.1.2 The outdoor swimming pool with spacious grounds, maybe at a greater risk than other pools. If there are structures such as diving towers, precautions should be taken. For example, the erection of a lightning conductor, higher than the dive tower, would reduce the likelihood of a lightning strike hitting the dive towers.

**4.2 Supervision**

Note: A flash-to-bang measurement of approximately 15 seconds indicates that the lightning is 5km away. A measurement of 15 seconds or less requires that immediate action be taken.

4.2.1 (a) The closure of the swimming pool is required when lightning is within 5km of the aquatic venue.  
(b) Use the "flash-to-bang" method, by measuring the time between a lightning flash and the thunder clap, to make a rough measure of the distance.  
(c) When lightning is less than 5km away, people occupying the pool and pool surrounds should be evacuated to a covered area, which provides sufficient electrical earth for a lightning strike. Gazebos, marquees and trees are not sufficient.

4.2.2 (a) Electrical equipment should not be used during electrical storms.  
(b) The use of portable, battery-powered PA systems (E.g. loud hailer) may be considered when the storm is very close, since fixed-installation PA systems may be struck by lightning.  
(c) Telephones should not be used during electrical storms.

4.2.3 Access to the pool and its surrounds should be allowed only when the storm has moved further away than 5km or has subsided.

**4.3 First Aid**

4.3.1 Anyone struck by lightning should be rescued as soon as it is safe to do so.

(a) The safety of the rescuers should be considered.  
(b) The casualty should be moved to a covered area, assessed and treated. 4.4 Monitoring

4.4.1 If there are area weather warnings issued, they should be monitored by radio or telephone, if and when safe to do so.

4.4.2 Detailed monitoring is available through the Bureau of Meteorology in each State and Territory.

**1. TITLE SUPERVISION OF DIVING (RECREATIONAL SWIMMING)****2. DATE ISSUED** 1 January 2001, ISSUE 1**3. PURPOSE** To provide safety guidance for diving (water entry) and methods of supervision during recreational swimming.

Note 1: Diving into water is a dangerous activity and the following guidelines describe the minimum conditions required.

Note 2: For diving from diving towers and springboards, refer to Guideline SU12.

Note 3: For the teaching of diving, refer to Guideline PR 9 (LTS9).

**4. DEFINITION**

**4.1** A dive entry is defined as a forward entry from a standing position with arms out stretched and hands held together.

**4.2** Forward clearance is defined as the distance from the platform from which the diver departs, for which the water should be unobstructed. Obstructions may be permanent, such as pool walls, or temporary, such as pool equipment or other swimmers.

**5. DESCRIPTION****5.1 Depths for Recreational Dives**

**5.1.1** (a) A dive entry should not be permitted into a water depth of less than 1800mm.

(b) A dive entry from a starting block should not be permitted into water depth less than 2000mm.  
(see also FD 24 Section 5.2).

(c) A dive entry from pool sides exceeding 380mm above water level should not be permitted into water depth less than 2000mm.

**5.1.2** Running dives should not be permitted into any depth of water.

**5.1.3** dive entry should only be allowed in pools where there is a forward clearance of 6000mm or greater, the first 5000mm of which should be at the recommended water depth.

**5.2 Isolation (see also FD 24)**

**5.2.1** Permanent starting blocks located at water less than 1800mm deep should be isolated to prevent use during recreational swimming.

**5.2.2** Isolation should be designed to prevent climbing or misuse of the starting blocks.

**5.2.3** (a) Isolation of starting Blocks should not introduce any further risk to facility users.

(b) Isolation maybe in variety of forms e.g. physical barriers or warning signage and supervision.

**5.3 Signage**

Note: Refer to Guidelines FD3, FD4 and FD24, and Australian Standard AS2416, Design and application of water safety signs.

- 5.3.1 All signage relating to diving rules should meet the Australian Standard AS2416 for classification, layouts, size, legend, legibility, colours, and siting.
- 5.3.2 All signage relating to diving rules should accurately convey those rules.
- 5.3.3 All signage should be maintained to be clear and easily identified.
- 5.3.4 All markings should be of a strong contrast against the surrounding areas, as per AS2416.
- 5.3.5 Wording and symbols on signage relating to diving rules should be consistent for all instances throughout the venue.
- 5.3.6 The actions and interventions taken by pool supervising staff to enforce diving rules should be consistent with all signage.

#### 5.4 **Leisure Pools and Wave Pools**

Note: Refer to Guidelines SU13, SU14 and SU17.

- 5.4.1 Diving in or into wave pools should be prohibited at all times.
- 5.4.2 All practicable measures should be taken to prevent diving from elevated positions arising from design features or equipment used in the pool.
- 5.4.3 Jumping should be prohibited into wave pools when the waves are in action.

**1. TITLE** STANDARD OF SWIMMING TEACHER EDUCATION**2. DATE ISSUED** 1 July 1996, ISSUE 2**3. PURPOSE** To outline, for employers, the minimum standard of accreditation for those employed as teachers of swimming.  
Note: The responsibility of the swimming teacher is for the class being taught, not the users of the rest of the facility.**4. DESCRIPTION****4.1** Appropriateness of the Qualifications The qualifications used as the required standard of teaching should be appropriate to the requirements of the teaching situations, for example the environment, type of water or characteristics of the class.**4.2 Minimum Qualification**

A current AUSTSWIM Teacher of Swimming and Water Safety Certificate is the recommended minimum qualification for the swimming teacher.

**4.3 Extension Programs**

For those teaching specialist groups, eg, pre-school aquatics, surf, adults or people with disabilities, personnel should preferably hold the AUSTSWIM Extension Certificate appropriate to that group, in particular when training is readily available.

**4.4 Re-registration**

- (a) AUSTSWIM Certificate holders remain registered for a defined period of time. Certificate holders are required to undergo a periodic formal re-registration for the validity to be extended for a further period.
- (b) This certificate is considered valid only if accompanied by a current cardio pulmonary resuscitation (CPR) qualification from a recognised provider.

**4.5 Check on Accreditation**

It is the employer's responsibility to check:

- the status of an individuals qualifications
- the currency of the qualification
- the ability of the person to perform any activities within the qualification, in particular the water safety components.

**1. TITLE** SWIMMING TEACHING EMERGENCY PROCEDURES**2. DATE ISSUED** 1 July 1996, ISSUE 3**3. PURPOSE** To provide guidance regarding appropriate emergency procedures.**4. DESCRIPTION**

**4.1** The responsibility of the swimming teacher is for the class being taught, not the users of the rest of the facility. However, under the direction of the responsible person, eg, pool manager, the swimming teacher may be required to participate in any emergency situations as and when they arise and after first securing the safety of their class.

**4.2 AUSTSWIM Certificate**

The AUSTSWIM Teacher of Swimming and Water Safety Course provides initial guidance and training for teachers in regard to emergency procedures for learn to swim programs.

**4.3 Liaison with Pool Management**

- (a) Pools should have an emergency procedure document.
- (b) Teachers whether teaching, swimming or supervising should be aware of and understand relevant emergency procedures.
- (c) Swimming teachers and pool managers should liaise on this matter to ensure that the procedures including key emergency service telephone numbers are on display and easily accessible.

**4.4 Practise**

Emergency procedures should be practised regularly by all personnel staffing a Centre, including swimming teachers, to ensure such procedures are functional and appropriate.

**4.5 Employing Agency Responsibility**

It is the responsibility of employing agencies to ensure that emergency procedures are in place, practised and that all staff understand their role in an emergency.

**1. TITLE** STANDARDS OF SWIMMING TEACHER SAFETY QUALIFICATIONS**2. DATE ISSUED** 1 July 1996, ISSUE 3**3. PURPOSE** To provide a guide to the minimum standard of safety qualifications for swimming teachers.**4. DESCRIPTION****4.1 Priorities for the Swimming Teacher**

- (a) While the primary role of the swimming teacher is to teach swimming, consideration of safety should be an integral part of a teachers role including planning and class management. While these matters are included as part of the AUSTSWIM training, it must be recognised that an AUSTSWIM Teacher of Swimming and Water Safety Certificate is a teaching, not a rescue, qualification.
- (b) Swimming Teachers should hold additional appropriate water safety and rescue qualifications, such as those offered by The Royal Life Saving Society.

**4.2 Type of Qualification**

Swimming Teachers should hold a safety and rescue qualification which is appropriate to the environment and venue in which they teach.

**4.3 Resuscitation and Emergency Care**

Swimming Teachers should hold a cardio pulmonary resuscitation (CPR) certificate issued by an AUSTSWIM recognised organisation such as The Royal Life Saving Society which has been taken or updated within the previous twelve months.

**4.4 Validity of Awards**

The Australian Resuscitation Council (ARC) recognise CPR qualifications as being current for one year. Employers and employees should ensure that all qualifications are current.

**4.5 Need for Training**

- (a) Completion of the CPR and water rescue components for the Teacher of Swimming and Water Safety Certificate are an indication of the competence of a person at the time of the test. Regular training is required to ensure that adequate standards are maintained.
- (b) It is the employers responsibility to ensure that employees are capable of performing to the standard required whenever they are involved in a swimming and water safety program.

**1. TITLE**            **TEACHING SWIMMING - TEACHER PUPIL RATIOS FOR SAFETY****2. DATE ISSUED** 1 July 1996, ISSUE 2**3. PURPOSE**        To provide guidance regarding the appropriate levels of teacher: pupil ratios in relation to the teaching of swimming.**4. DEFINITION**

**4.1**                The teacher: pupil ratios outlined in this Guideline do not have any bearing on the lifeguard: bather ratios recommended in Guideline SU1.

**4.2**                The information below relates to issues of safety, not ratios considered ideal for teaching effectiveness.

**4.3**                The responsibility of the swimming teacher is for the class being taught, not the users of the rest of the facility.

**5. DESCRIPTION****5.1**                **Nature of the Environment and Group**

Appropriate teacher:pupil ratios will depend upon issues such as:

- the environment.
- level of ability of the class.
- nature of the person/people being taught.
- the type of activity.
- the venue.
- the weather.

When these factors create difficulties in supervision or control, it is recommended that the teacher: pupil ratio be increased with additional qualified teachers.

**5.2**                **Number of Qualified Personnel**

(a) In addition to the qualified swimming teacher undertaking the swimming instruction and who is responsible for the pupils, a second person, who is capable of providing assistance in the case of an emergency, should be available.

(b) This person need not be a lifeguard or a qualified swimming teacher but should have qualifications in First Aid or CPR, and be able to undertake emergency actions.

### 5.3

#### Ratios

For the safety of the pupils, the following maximum ratios are recommended:

- (a) For the teaching of beginners, with little or no experience, in shallow water the maximum teacher: pupil ratio for a swimming pool is 1 teacher to 10 pupils and for an open water venue is 1 teacher to 6 pupils.
- (b) For the teaching of intermediate pupils who are able to achieve basic skills and can swim 25 metres with a recognisable stroke, the maximum teacher: pupil ratio for a swimming pool is 1 teacher to 12 pupils and for an open water venue is 1 teacher to 10 pupils.
- (c) For the teaching of advanced pupils who are able to swim 50 metres using two recognisable strokes and demonstrate one survival stroke in deep water, the maximum teacher: pupil ratio for a swimming pool is 1 teacher to 15 pupils and for an open water venue is 1 teacher to 12 pupils.

### 5.4

#### Groups with Special Needs

Special groups may require specific attention and may need one on one attention, eg, people with some disabilities. (refer also Guideline LTS 8)



1. TITLE            **PRESCHOOL AQUATIC PROGRAMS - UNDER TWELVE MONTHS**

2. DATE ISSUED 1 July 1996, ISSUE 2

3. PURPOSE        To outline the guidelines for the conduct of aquatic activity for children under twelve months.  
Note: This Guideline is based on both AUSTSWIM and The Royal Life Saving Society Australia national guidelines.

4. DESCRIPTION

4.1                It is not recommended that children under 12 months participate in formal aquatic programs.

4.2                During the first year infants should participate in informal casual water play activities under in-water supervision of parents, guardians or carers.

Note: AUSTSWIM, The Australian Council for the Teaching of Swimming and Water Safety is currently reviewing its Guidelines for Infant and Preschool Aquatic Activity Programs and propose to release new guidelines in late 1996 or early 1997.



**1. TITLE** PRESCHOOL AQUATIC PROGRAMS - TWELVE MONTHS TO THREE YEARS**2. DATE ISSUED** 1 July 1996, ISSUE 2

**3. PURPOSE** To outline the guidelines for the conduct of aquatic activity for children between twelve months and three years.  
Note: This Guideline is based on both AUSTSWIM and The Royal Life Saving Society Australia national guidelines.

**4. DESCRIPTION**

- 4.1** (a) Aquatic programs for children under the age of three years should be promoted as water familiarisation (getting used to being in water). Other terms such as "drown-proofing", "waterproofing" or "water safe" should not be used as they suggest some sort of guarantee.
- (b) Parents should supervise their children carefully at all times when they are in or near water.
- (c) Emphasis should be placed on the fact that children learn best through play and all activity should be in the form of games with ample opportunity for exploration in a happy non-threatening atmosphere.
- 4.2** The parent or guardian of the child must be responsible for making sure that the child is in good health while attending aquatic programs. If there is a known problem, the child should have a doctor's certificate stating that he or she is fit to participate in the program.
- 4.3** (a) Teachers conducting programs for children 1-3 years should have completed the appropriate AUSTSWIM extension program.
- (b) The teacher should provide in-water instruction.
- (c) At least one other person present should have a current certificate in cardio pulmonary resuscitation of young children and babies.
- 4.4** Certain water familiarisation techniques, such as throwing an infant into the water from a height, or total submersion, are not recommended.
- 4.5** The water temperature for this age of child should be at a sufficiently high temperature to ensure the pupils are comfortable and do not become unduly cold.
- 4.6** (a) The pool and associated facilities should be maintained according to standards specified by State and local authorities regarding safety, water purity and sanitary conditions.
- (b) Floors and passageways should be safe and slip-resistant.
- (c) Dressing rooms and changing tables should be well maintained.
- 4.7** (a) Appropriate clothing should be worn by infants and young children. Young children should wear pants that fit snugly around the legs to ensure that bowel movements do not enter the pool. Any child having a bowel movement should leave or be removed immediately from the water and change into clean clothing. Soiled clothing and nappies should be disposed of carefully.
- (b) It may be necessary for other pool users to exit a pool in which a person has excreted. The pool supervisor should be notified immediately.

- 4.8 (a) For the safety of pre-schoolers it is recommended that the water familiarisation activity requires the in-water participation by each child's parent or person trusted by the child with a maximum of one child per parent/carer.
- (b) A water familiarisation activity group or program should be supervised in the water by an appropriately qualified teacher.

4.9 When in an outdoor venue, the application of sunscreen and wearing of additional clothing to protect the child from the sun's damaging rays is recommended.

Note: AUSTSWIM, The Australian Council for the Teaching of Swimming and Water Safety is currently reviewing it's Guidelines for Infant and Preschool Aquatic Activity Programs and propose to release new guidelines in late 1996 or early 1997.

**1. TITLE**            **PRESCHOOL AQUATIC PROGRAMS - THREE TO FIVE YEARS OF AGE****2. DATE ISSUED** 1 July 1996, ISSUE 2**3. PURPOSE**        To outline the guidelines for the conduct of aquatic programs for children aged between three years of age and over and under five years of age.

Note: This Guideline is based on AUSTSWIM and The Royal Life Saving Society Australia national guidelines.

**4. DESCRIPTION**

- 4.1**            The parent or guardian should be responsible for ensuring the good health of the child while participating in aquatic programs. Pertinent health information about pre-existing conditions which could affect the child's ability to participate in the activities should be obtained from the parents before a child is accepted into a program.
- 4.2**            (a) Teachers conducting programs for children from 3-5 years should have completed the appropriate AUSTSWIM extension program.
- (b) The teacher should hold a current certificate in cardio pulmonary resuscitation which includes techniques for children.
- 4.3**            (a) For the safety of the pre schoolers, it is recommended that water familiarisation and awareness programs be under the supervision of an in-water qualified teacher with a maximum teacher: pupil ratio for a swimming pool of 1 teacher to 5 pupils.
- (b) These water awareness programs may or may not involve the in-water participation of a parent or carer.
- (c) The above ratio and possible in-water participation of a parent or carer will depend upon the overall needs and abilities of the children.
- 4.4**            (a) The pool and associated facilities must be maintained according to standards laid down by State and local authorities regarding water purity and general sanitary conditions.
- (b) The water temperature should be sufficiently high to ensure pupils are not unduly cold.
- 4.5**            Acceptable flotation aids may assist with the gaining of confidence but flotation aids are not life saving devices and must only be used under competent adult supervision.
- 4.6**            Irrespective of swimming and survival ability, no child should be considered water safe. Young children should be guided on how to behave when in, on, or around water. Remember - children must be supervised at all times.
- 4.7**            When in an outdoor venue, the application of sunscreen and the wearing of additional clothing to protect the child from the sun's damaging rays is recommended.

**1. TITLE           DISABILITY AQUATIC PROGRAMS****2. DATE ISSUED** 1 July 1996, ISSUE 1**3. PURPOSE**     To outline the guidelines for the conduct of aquatic activity for those who have a disability requiring special needs.**4. DESCRIPTION**

There is a large range of human disabilities which may inhibit full involvement in aquatic activity with more able bodied people, including physical, mental, audible and visual impairment.

**4.1**           Staff should be aware of the presence of patrons with impaired mobility.**4.2           Staff Training**

(a) Staff should be trained in safe lifting techniques for the provision of assistance to disabled patrons and for the emergency removal of patrons.

(b) Staff should also be trained in communicating with people with a disability to reduce the chance for confusion and possible embarrassment from both parties.

(c) Staff could be trained in three or four basic 'sign language' movements for use with the audibly impaired in emergency situations.

**4.3**           Teachers conducting programs for people with disabilities should have completed the appropriate AUSTSWIM extension program.

(a) For the safety of disabled persons, it is recommended that each person be given an individual assessment of his or her needs by the Care-giver and the teacher prior to and during instruction.

(b) There are many disabled persons who may not require a Care-giver and as such direct liaison with the teacher will be appropriate.

(c) The maximum teacher pupil ratio for swimming pool instruction is 1 teacher to 6 pupils.

(d) There may be disabled persons with medical conditions or severe physical or intellectual impairment which may require the constant supervision of the in-water teacher with a teacher: pupil ratio of 1 teacher to 1 or 2 pupils.

(e) Care-givers may be required to provide in-water care and should be prepared accordingly.

**1. TITLE**            **TEACHING OF WATER ENTRY AND DIVING****2. DATE ISSUED** 1 November 2002, ISSUE 2**3. PURPOSE**        To outline the safety considerations for the teaching of safe water entry and diving for beginners.

Note: These guidelines are designed to pertain only to learn to swim instruction of water entry.

(Refer SU24, section 4)

**4. DEFINITION**    Dive entry is defined as entry into water where the upper body (the hands, arms and head followed by the torso and lower limbs) enters first during activities, which are conducted under aquatic programming such as:

- Swimming and related (triathlon, distance swimming) squad training and competition
- Lifesaving classes

**5. DESCRIPTION****5.1**                **Introductory Information**

- (a) Prior to the commencement of the teaching of water entry and diving it is important that the Instructor understand and give consideration to specific safety factors, including the depth of water into which the learner will enter.
- (b) The learner should be educated in the dangers of diving into both known and unknown pools, lakes, dams, rivers and creeks.
- (c) The learner on their first visit to the water environment in which the instruction is to take place should receive a facility familiarisation induction on the safety considerations prior to entering the water.

**5.2**                **Basic Safety Rules**

- (a) The depth of water should be checked by both the Instructor and the beginner before entry into any body of water.
- (b) It is good practice to slide in to check the water depth before diving, particularly in unfamiliar areas.
- (c) At a pool, check for water depth signs.
- (d) Ensure that the water area into which entry is anticipated is free of obstruction. (e.g. bathers, toys, lane ropes).
- (e) Jump or dive away from the pool edge.

**5.3**                **Minimum Water Depths**

- (a) The minimum water depth of 1500mm is suitable for learn to swim water entry and diving instruction.
- (b) The water depth should ideally be at least 1500mm. However this must only be considered as exemplary, as some pools may not be able to provide appropriate water depths. It is suggested the above be used as guidance only and be followed where possible. If the preferred minimum water depth is not available the deepest water available should be used with the exercise of additional caution.

#### 5.4 Progressive Instruction

The teaching of safe water entry and diving should be taught progressively in the following sequence.

- In water forward glide from standing position
- Pool side, seated
- Pool side, standing crouched
- Pool side, standing
- Starting block.

Progression to the next level should only be permitted following successful demonstration of the current skill.

#### 5.5 Diving from Starting Blocks

- (a) Flat racing type dives should be taught from the concourse in water depth of 1200mm for a distance of 5000mm from the pool wall before allowing entry from a starting block.
- (b) Flat racing type dives should be able to be consistently performed from poolside before allowing a flat racing type dive from a starting block installed in accordance with FD 24.

#### 5.6 Instructors

- (a) Only qualified swim coaches, lifesaving instructors (excepting beach lifesaving), and swim Instructors (e.g. AUSTSWIM) should instruct safe water entry and diving skills. 5.7 Other Diving Considerations
- (b) Running dives should not be permitted.
- (c) Diving should only be allowed in pools where there is sufficient forward clearance (ideally greater than 5000mm) for a constant depth.
- (d) Diving should not be permitted in a wave pool when waves are in motion.
- (e) Diving classes should be segregated from swimming areas, and one Instructor should not attempt to carry out simultaneous diving and swimming instruction in the same class at the same time.

## 6. REFERENCES

Austswim Teaching Swimming and Water Safety, The Australian Way

Austswim Teaching Swimming and Water Safety, Course Essentials

Guideline SU 23 Safe Water Entry For Competitions

Safe Depths for Teaching Children to Dive (Blanksby B.A, Wearne F.K, Elliott B.C 1996),

The Australian Journal of Science and Medicine in Sport.

**1. TITLE**            **QUALIFICATIONS FOR PROVIDING SAFE AQUATIC PROGRAMS****2. DATE ISSUED** 1 January 2001, ISSUE 1**3. PURPOSE**        To establish the minimum standard of accreditation for those employed or contracted to act as instructors of aquatic programs.**4. DEFINITION****4.1**            **The term 'instructor' describes:**

- (a) an appropriately qualified person specifically employed or contracted to instruct a person in a skill or set of skills; or
- (b) an appropriately qualified person specifically employed to supervise or lead an aquatic activity, even when supervision or leadership does not involve instruction of specific skills.

**4.2**            The term 'instruction' describes supervision or leadership of an activity, regardless of whether the supervision or leadership involves instruction of specific skills.

Note: These definitions apply to all guidelines in the Aquatic Program Section.

**5. DESCRIPTION****5.1**            **Priorities for the Aquatic Program Instructor**

- (a) The primary role of the aquatic program instructor is to teach participants the skills required to successfully perform the activity, or lead the activity, which is the focus of the program.
- (b) The safety of participants should be an integral part of the planning of the program and the role of the instructor or leader.

**5.2**            **Suitability of Qualifications/Appropriateness of Qualifications****5.2.1**            While many qualifications for instruction of aquatic activities contain water safety and rescue components, it must be recognised that they are primarily instructional rather than rescue-focussed. In addition, general water safety principles and rescue procedures for those activities normally run in natural water environments may not be entirely suitable for venues such as swimming pools. Accordingly, it is recommended that instructors hold the following qualifications:

- (a) a CPR certificate issued by a registered training provider;
- (b) a recognised minimum qualification for instruction of the programmed activity, provided that the qualification includes a water safety and rescue component; and
- (c) additional recognised water safety and rescue qualifications appropriate to the program venue, such as those offered by the Royal Life Saving Society Australia or other registered training providers.

**5.2.2**            Instructors should also be informed and trained in the emergency procedures for the venue in which they are employed.



5.2.3 The qualifications required for the instruction of an aquatic activity should be appropriate for:

- (a) the activity program;
- (b) the skills required of, or to be learned by, participants; and
- (c) the environment in which the program is conducted.

5.2.4 Employers may take as a guide the minimum qualifications required of instructors or by professional associations representing such programs or activities in other environments.

### 5.3 **Validity of Qualifications**

5.3.1 The Australian Resuscitation Council (ARC) recommends a CPR qualification as requiring a annual accreditation.

5.3.2 Organisations issuing water safety, rescue, and instructional qualifications require that such qualifications should be renewed regularly, or that holders of those qualifications regularly renew pre-requisites to maintain the validity of the qualification.

5.3.3 Employers, employees, and contractors should ensure that all qualifications are current.

### 5.4 **Service Training**

5.4.1 Attainment of CPR and water safety and rescue qualifications, and water safety and rescue components of instructional qualifications, is indicative of the holder's competence when relevant skills are tested for the purpose of accreditation. Regular training is required to ensure that holders of such qualifications can perform such skills between formal tests.

5.4.2 It is the employer's responsibility to ensure those employees and contractors involved in aquatic programs are:

- (a) capable of performing CPR and rescues; and
- (b) familiar with, and capable of participating as required in, emergency procedures for the venue or the program.

Note: These should be assessed prior to commencement of duties.

### 5.5 **Minimum Qualifications**

The following minimum qualifications for aquatic activities are recommended:

5.5.1 Swimming Classes AUSTSWIM Teacher of Swimming and Water Safety Certificate or Equivalent Qualification.

The following qualifications or extensions are recommended for the following areas of specialisation.

- (a) Infants AUSTSWIM Teacher of Infant Aquatics or Equivalent Qualification.
- (b) Toddlers AUSTSWIM Teacher of Infant Aquatics or Equivalent Qualification.
- (c) Pre-school AUSTSWIM Teacher of Infant Aquatics or Equivalent Qualification.
- (d) School age AUSTSWIM Teacher of Swimming and Water Safety Certificate or Equivalent Qualification.
- (e) Adults AUSTSWIM Teacher of Swimming and Water Safety Certificate or Equivalent Qualification.
- (f) Competitive Strokes Australian Swimming Coaching Qualification or Equivalent Qualification.
- (g) Special needs AUSTSWIM Teacher of Aquatics for People with Disabilities or Equivalent Qualification

The following RLSSA awards require the following qualifications:

- (a) Rescue Awards 1-4 AUSTSWIM Teacher of Swimming and Water Safety, RLSSA Junior Instructor RLSSA Instructor, or Teacher Of Life Saving Award or Equivalent Qualification.

(b) Bronze Star RLSSA Instructor/examiner or Teacher Of Life Saving Award or Equivalent Qualification.

(c) Bronze Medallion RLSSA Instructor/examiner or Teacher Of Life Saving Award or Equivalent Qualification.

(d) Bronze Cross and higher RLSSA Teacher of Life Saving Award or Equivalent Qualification.

5.5.3 Swimming Coaching Australian Coaching Council/National Coaching Accreditation Scheme. Level 1 or Equivalent Qualification.

5.5.4 Diving Coaching Australian Coaching Council/National Coaching Accreditation Scheme. Level 1 or Equivalent Qualification.

5.5.5 Pool Parties RLSSA Swim Teachers' Rescue Award or Equivalent Qualification

5.5.6 Aqua-Aerobics Aquatic Exercise leaders Certification or Equivalent Qualification.

## 5.6 Extension Programs

Many accrediting organisations provide extensions or additional qualifications. Some are listed above. Others relate to training qualified staff or trainers. Instructors should seek, and employers should encourage, additional qualifications appropriate to the group being taught or supervised.

## 5.7 Re-registration

Many accrediting organisations require that instructors qualify for registration at regular intervals. Minimum qualifications are maintained either through a re-examination of required skills or presentation of proof of the currency of pre-requisites for the qualification.

## 5.8 Proof of Accreditation

It is the employer's responsibility to ensure that:

(a) instructors are appropriately qualified;

(b) the instructor's qualifications are current; and

(c) instructors are able to perform any activities within the qualification, particularly those relating to water safety, and additional safety or emergency procedures required at the place of employment.

## 6. REFERENCES

Guideline PR3, Aquatic Programs Emergency Procedures

Kilpatrick, John and Peter Meaney, eds. (1998) Teaching Swimming and Water Safety. Course Essentials.

Hartwell. AUSTSWIM Inc

Bathgate, Ken, ed. (1995) Swimming and Lifesaving. Artamon: Times Mirror International/

Royal Life Saving Society-Australia

**1. TITLE**      **AQUA EXERCISE****2. DATE ISSUED** 1 January 2001, ISSUE 1**3. PURPOSE**      To provide guidance on the standard of supervision of aqua exercise classes.**4. DEFINITION**

- 4.1**              Aquatic based exercise classes (aqua aerobics) are low impact classes undertaken in varying water depths.
- 4.2**              The responsibility of the instructor is for the class participants being instructed, not the users of the rest of the facility. However, under the direction of the responsible person, e.g. pool manager, the instructor/s maybe required to participate in any emergency situations as and when they arise only after first securing the safety of their class participants.

**5. DESCRIPTION:**

- 5.1**              The minimum qualifications for conducting aqua exercise classes are:
- Current CPR certificate
  - Current Australian Fitness Association Council or Equivalent Qualification.
  - Completion of Aqua-Exercise leaders Certification or Equivalent Qualification.
  - Aquatic Rescue Award or Equivalent Qualification. eg, Swim Teachers Rescue Award.

**5.2**              **Pool Supervision**

**5.2.1**              It is acceptable for the leader to be considered the pool Supervisor, where the aqua exercise class participants are the only participants in the pool.

**5.2.2**              Where the aqua exercise instructor is the pool supervisor.

(a) The instructor should have access to and be trained in the following equipment:

- First Aid equipment
- Oxygen equipment
- Emergency communication system (eg, phone)

(b) Have another suitably qualified person on duty

**5.3**              **Emergency Procedures**

**5.3.1**              Emergency procedures should be practised regularly by all personnel staffing a centre, including aqua exercise class leaders.

**5.3.2**              These procedures should be documented and staff knowledge of emergency routines tested regularly.

**5.4**              **Employing Agency Responsibility**

**5.4.1**              It is the responsibility of employing agencies to ensure that emergency procedures are in place, practised and that all staff understand their role in an emergency.

## **5.5 Instructor: Participant Ratio for Safety**

5.5.1 Appropriate Instructor - participant ratios will depend upon issues such as:

- environment
- level of ability of the class
- nature of the participants
- type of class
- venue
- pool space available
- weather.

5.5.2 Recommended participant/instructor ratio's -

(a) Aqua instructor sole supervision 1:30 (maximum)

(b) Aqua instructor plus lifeguard 1:40 (maximum)

## **5.6 Pool Conditions/Environment**

5.6.1 Classes should be conducted in clearly designated areas.

5.6.2 The class should be under visual control of the instructor/s at all times.

5.6.3 Ideally the pool water temperature should be between 24°C and 33°C.

5.6.4 If the water temperature exceeds 29°C,

(a) Exercises should be completed at a slower pace with longer recovery times.

5.6.5 If the water temperature is below 24°C the activity should be continual.

5.6.6 Classes should not be conducted in water temperature below 17°C.

5.6.7 For standing exercises classes should be conducted in water no greater than shoulder height.

5.6.8 All participants should be encouraged to have water bottles and replace fluids regularly during the class.

## **5.7 Class Introduction**

5.7.1 Prior to beginning each class an introductory preamble by the instructor should assess:

- the experience of the participants
- known medical problems and injuries
- the approximate fitness level of the participants

5.7.2 Participants should be encouraged to:

- (a) work at their own pace;
- (b) hydrate regularly and take breaks if they are required.

## **5.8 Aqua Exercise Equipment**

5.8.1 Aqua exercise equipment should not be placed so that it impedes on traffic flow areas e.g. pool concourse.

5.8.2 Exercise mats should be constructed of a non-slip material and be placed to avoid being a trip hazard to the instructor and others.

5.8.3 Recommend that all equipment be checked prior to class commencement.

5.8.4 Recommend that all mains power sound equipment should have earth-leakage protection fitted and be positioned so as to reduce the risk of electrocution.



**1. TITLE**            **LOW PATRONAGE POOLS**

**2. DATE ISSUED** 1 July 1996, ISSUE 3

**3. PURPOSE**        To establish guidelines for the supervision of swimming pools that consistently have low patronage.

**4. DEFINITION AND SCOPE**

The pools that are covered by this specific guideline should be determined as follows:

**4.1**            **Low Patronage**

A venue that consistently has fewer than 50 patrons in the water at any one time.

Note: Pool Supervisors should be cognisant of the total number of swimming venue users within the 'grounds' at any one time and who may decide to enter the pool(s) virtually unannounced. The resultant could be a dramatic increase in the number of people in the water, an increase in risk and a need for increased supervision.

**4.2**            **Changes in Patronage**

When there is an increase in consistent patronage above 50 persons in the water due to factors such as:

- summer school holidays.
- ongoing hot weather which may be either seasonal or unseasonal.
- school carnivals.
- community festival(s).
- community group(s) picnics or family days.

This Guideline will not apply at these times.

**4.3**            This Guideline also identifies a number of modifications to other Guidelines in relation to the operation to Low Patronage Pools. Where there is no modification offered in LP1 all other Guidelines apply.

**5. DESCRIPTION**

**5.1**            **Supervision**

- (a) A responsible person should be in attendance at all times that the pool is in use.
- (b) The responsible person should also be mature and where possible a minimum of 18 years of age.
- (c) The responsible person should be qualified to a minimum of a current RLSSA Pool Lifeguard Award.
- (d) Where access to RLSSA Pool Lifeguard training and assessment is not reasonably available, this person should be trained and qualified to a minimum level of a current RLSSA Bronze Medallion.
- (e) Significant increase in patronage due to special events (eg school carnivals) or high temperature may necessitate an increase in supervision. In such cases, the bather supervision standards in Guideline SU1 shall apply.

(f) Persons who may be called upon to assist the responsible person should have training in First Aid, CPR and lifesaving techniques.

(g) An emergency support system should be in place with an effective means of communication (refer also section 5.7 below) which may include:

- a siren that can be used to call local qualified community members
- a direct telephone link to an appropriate emergency service. eg. Police.

**5.2** It is essential that the following factors be provided at low patronage pools:

(a) An emergency plan or procedures that relate to the specific pool or pools

(b) An emergency support system should be on display and known to users

(c) Information on First Aid, Cardio pulmonary Resuscitation, and Expired Air Resuscitation should be clearly displayed at the pool

(d) Advisory signs relating to appropriate behaviour should be clearly visible to users

**5.3** Users should be made familiar with emergency procedures.

**5.4** Safety equipment should be available on site, eg rope, reaching pole, resuscitation pocket mask. (refer also Guidelines in General Operations, Technical Operations and First Aid)

**5.5** A First Aid Kit and appropriate oxygen equipment should be available and accessible on site.

**5.6 Communication**

A means of communicating with emergency support services (back up) should be accessible and be able to be used by the responsible person.

**5.7 Chemicals**

The responsible person should comply with all health and safety legislation and regulations relating to the handling and use of all relevant chemicals. (refer also Technical Operations Guidelines)

**5.8 Water Quality**

The responsible person should maintain the quality of water in accordance with relevant legislation and regulations. (refer also Guideline TO1)

REFERENCES REF1.

REF1.

**TITLE**                      **REFERENCES**

**DATE ISSUED**      1 July 1996

- First Aid in the Workplace Code of Practice 1995 Occupational Health and Safety Act 1985 VICTORIA.
- Water purification standards for public swimming pools and spa pools. Health Department Victoria 1990.
- Hydrotherapy Services Advisory Committee - Final Report Health Department Victoria. 1986.
- A Comprehensive Guide to becoming a SunSmart Council (Anti-Cancer Council of Victoria).
- Swimming and Lifesaving, (Third Edition) The Royal Life Saving Society Australia, 1995.
- The Surf Lifesaving Training Manual. (28th Edition). Surf Lifesaving Association of Australia.
- Resuscitation and Emergency Care, (Third Edition) The Royal Life Saving Society Australia, 1995.
- Safety in Swimming Pools. Health and Safety Commission and The Sports Council, United Kingdom, 1988.
- Diving in Swimming Pools - Guidance for Swimming Pool Operators. Institute of Baths and Recreation Management (United Kingdom).
- Making Your Recreation Centre Viable. Sport and Recreation Minister's Council. 1990.
- Oxygen, J. Lippmann, The Royal Life Saving Society Australia, 1994.
- Lifeguarding, (Second Edition), The Royal Life Saving Society Australia, 1995.
- WWA Considerations for Operating Safety, World Waterpark Association, 1989.
- On the GUARD II, The YMCA Lifeguard Manual (Second Edition), YMCA of the USA, 1994.
- Lifeguarding in the Waterparks, R. Hunt, 1990.
- Public Pools (381/84), Health Protection and Promotion Act, 1983, ONTARIO CANADA.
- Alert, Lifeguarding Action, The Royal Life Saving Society Canada, 1993.
- Swimming Pool Management Manual, Dr R. Johnson, USA, 1995.
- Public Bathing Place Manual, Swimming Pools, Part 1, Pennsylvania Department of Environmental Resources, USA, 1995.
- Improving the Safety of Waterslides, SAIL, West Glamorgan Institute of Higher Education, Swansea, UK 1990.
- FINA Handbook.
- Australian Guidelines for Recreational Use of Water, National Health and Medical Research Council, Australian Government Publishing Service, Canberra 1990.

**TITLE** STATE AND TERRITORY REGULATIONS

**DATE ISSUED** 1 July 1996

When using the Guidelines for Safe Pool Operation in different State and Territories it is incumbent on the reader to ensure that they are familiar with the relevant regulations, guidelines or legislation that exist in their area. The following are the key known regulations that pertain to the individual states and territories.

#### WESTERN AUSTRALIA

- (1) HEALTH ACT (SWIMMING POOLS) REGULATIONS 1964 A number of amendments have taken effect since 1964. These should be checked to remain up to date with the prevailing regulations.
- (2) OCCUPATIONAL HEALTH, SAFETY AND WELFARE REGULATIONS 1988

#### QUEENSLAND

- (1) ACCIDENT PREVENTION CODE OF PRACTICE - WORKPLACE AMENITIES. DEPT OF INDUSTRIAL AFFAIRS. SEPT. 1989
- (2) WORKPLACE HEALTH AND SAFETY ACT. 1989
- (3) GUIDELINES FOR RECREATIONAL WATER QUALITY. DEPT OF ENVIRONMENT AND HERITAGE. 1992

#### TASMANIA

- (1) There are no known State regulations relating to the Guidelines for Safe Pool Operation.
- (2) Consult the Bye-Laws of the relevant local government authority.
- (1) OCCUPATIONAL HEALTH AND SAFETY ACT 1983 NO. 20. (Reprinted as at 25 March 1991)
- (2) OCCUPATIONAL HEALTH AND SAFETY LEGISLATION (AMENDMENT) ACT 1990 NO. 121
- (3) SWIMMING POOLS ON PUBLIC LAND, WATER SAFETY, PRACTICE NOTE NO. 10, DEPARTMENT OF LOCAL GOVERNMENT & CO - OPERATIVES, NOVEMBER 1994.
- (4) PUBLIC HEALTH ACT 1991.

#### NORTHERN TERRITORY

- (1) Territory Health Services, Environmental Health Program, Draft September 1995.
- (2) Each Local government area has specific bye-laws that cover the swimming pools within their own jurisdiction.



## VICTORIA

- (1) FIRST AID IN THE WORKPLACE, CODE OF PRACTICE, DEPT OF LABOUR 1995.
- (2) HEALTH (INFECTIOUS DISEASES) REGULATIONS 1990.
- (3) WATER PURIFICATION STANDARDS FOR PUBLIC SWIMMING POOLS AND SPA POOLS.
- (4) DANGEROUS GOODS (STORAGE AND HANDLING) REGULATIONS. DEPT OF LABOUR 1989
- (5) OCCUPATIONAL HEALTH AND SAFETY ACT 1985.

## SOUTH AUSTRALIA

- (1) South Australian Health Commission, Code of Practice, 'Standard for the Inspection and Maintenance of Swimming Pools and Spa Pools in South Australia'
- (2) South Australian Health Commission, Code of Practice, 'Standard for the Operation of Swimming Pools and Spa Pools in South Australia'.
- (3) PUBLIC AND ENVIRONMENTAL HEALTH REGULATIONS 1991.

## AUSTRALIAN CAPITAL TERRITORY

- (1) PUBLIC BATHS AND BATHING ACT.

TITLE	BIBLIOGRAPHY OF AUSTRALIAN STANDARDS
DATE ISSUED	1 July 1996
AS 1319	Symbolic Safety Signs
AS 1339	Code of Practice for manual handling of materials
AS 1428.1	Design for Access and Mobility - Buildings
AS 1470	Health and Safety at Work - Principles and Practices
AS 1499	Personal Flotation Devices - Type 2
AS 1512	Personal Flotation Devices - Type 1
AS 1680	Interior Lighting
AS 1885.1	Describing and reporting occupational injuries and disease
AS 1900	Flotation Toys and Swimming Aids for Children
AS 1926	Swimming Pool Safety
AS 1926.1	Fencing for Swimming Pools
AS 1926.2	Location of Fencing for Private Swimming Pools
AS 1926.3	Water Recirculation and Filtration Systems
AS 2020	Safety Covers for private swimming pools and wading pools (for the protection of Children 5 years of age and under)
AS 2259	General requirements for buoyancy aids
AS 2260	Personal Flotation Devices - Type 3
AS 2261	Rescue Buoys
AS/NZS 2293.2	Inspection and Maintenance (Emergency evacuation lighting in buildings)
AS 2342	Development, testing and implementation of information and safety symbols and symbolic signs
AS 2369	Materials for solar collectors for swimming pool heating
AS 2416	Design and application of water safety signs
AS 2488	Resuscitators, intended for use with humans
AS 2508	Safe storage and handling information cards for hazardous materials
AS 2560.2.5	Guide to Sports Lighting Specific recommendations - Swimming Pools
AS 2569.1	Safe manual lifting and moving of patients
AS 2569.2	Selection and use of mechanical aids for patient lifting and moving
AS 2610.1	Public Spas
AS 2610.2	Private Spas
AS 2675	Portable First Aid Kits for use by consumers
AS 2783	Use of reinforced concrete for small swimming pools (<15m in length and >100m2
AS 2818	Guide to Swimming Pool Safety (Private Swimming Pools)



AS 2820	Gate units for private swimming pools
AS 2899.2	Water Safety Signs
AS 2927	The Storage Handling of Liquefied Chlorine Gas
AS 3000	Electrical Installations - Buildings, Structures and Premises
AS 3136	Approval and test specification - Electrical Equipment for spa-baths and spa and swimming pools
AS 3550.7	Construction and use of the Secchi Disc (Water Clarity)
AS 3581	Mechanical Aids for patient lifting and moving - Safety Requirements
AS 3633	Private Swimming Pools - Water Quality
AS 3634	Solar Heating Systems for Swimming Pools
AS 3745	Emergency Control organisation and procedures for buildings
AS 3790	Storage and Handling of Corrosive Substances
AS 3979	Hydrotherapy Pools
AS 4031	Non-reusable containers for the collection of sharp medical items used in health care areas
AS/NZS 4233	High pressure water setting systems - safe operation and maintenance
AS 4259	Ancillary devices for Expired Air Resuscitation
AS/NZS 4261	Reusable containers for the collection of sharp items used in human and animal medical applications
AS 4332	Storage and Handling of Gases in Cylinders

#### PROFESSIONAL PACKAGES

PP 19	Boilers and Pressure Vessels
PP 45	Swimming Pools and Spas
PP 38	Storage of Dangerous Goods
PP 47	Occupational Safety
	Note: Reference for the above Standards - Catalogue of Australian Standards and Other Products, 1996.

**TITLE** RLSSA POOL LIFEGUARD AWARD

**DATE ISSUED** 1 July 1996

Recognised as an Accredited Vocational Training Course, the RLSSA Pool Lifeguard Course aims to develop acceptable standards of knowledge, judgement, skills and physical abilities for the supervision of people in swimming pools.

**MINIMUM AGE** 16 years

**PREREQUISITE** RLSSA Bronze Medallion

**TARGET DURATION OF COURSE** 22 Hours

**CURRENCY OF QUALIFICATIONS** Twelve (12) months.

#### TOPICS

**Section 1 Lifeguarding and The Royal Life Saving Society**

Aim: To understand the role of The Royal Life Saving Society and the place of Lifeguarding within its framework.

**Section 2 The Role of the Lifeguard**

Aim: To understand the role and responsibilities of a Lifeguard and the qualities required in that role.

**Section 3 Accident Prevention - Facility Analysis and Supervision**

Aim: To develop a sensitivity to the dangers and safety hazards resulting from the facility's environmental and physical characteristics, as well as patron activity.

**Section 4 Aquatic Emergencies: Recognition and Intervention**

Aim: To cultivate a heightened awareness of patron activity and become skilled in recognising people in difficulty and to develop the confidence, skills and knowledge to intervene in an emergency.

**Section 5 Lifeguarding Skills and Procedures**

Aim: To develop the maturity, judgement, skill, knowledge and fitness enabling the lifeguard to assess risks and to make decisions about alternative rescue techniques and procedures.



**Section 6 Public Relations and Public Education**

Aim: To understand the benefits of Public Relations and Public Education programs and how they contribute to patron cooperation and safety.

**Section 7 Aquatic Emergency Care**

Aim: To develop the knowledge and skills to respond to an aquatic emergency and to provide appropriate care as a member of a lifeguard team.

**Section 8 Swimming and Leisure Pool Operations and Safety**

Aim: To gain the basic information on swimming pool operation and maintenance necessary for Lifeguards to enhance patron comfort and safety and to understand how their facility operates.

**TITLE** SWIMMING POOL WATER TREATMENT CHEMICALS**DATE ISSUED** 1 July 1996

The following list of chemicals describes those chemicals more likely to be found in use in the treatment of swimming pool water in Australia.

**Ozone:** An unstable, blue oxidising gas manufactured on site and removed from the water before returning to the pool.

**Sodium Hypochlorite:** A Class 8 corrosive liquid, yellow-green in colour, used to sanitise water and to oxidise germs.

**Chlorine Gas:** A Class 2.3 poisonous gas and a Class 5.1 oxidising agent. It is a greenish yellow gas/amber liquid with a pungent and irritating odour. It is a very good sanitiser with no residue and needs extra caution.

**Bromine (Tablets/Liquid):** A sanitiser, usually used in warmer water.

**Carbon Dioxide:** A Class 2.2 dangerous gas which when introduced into pool water forms carbonic acid used to lower pH.

**Cyanuric Acid (Stabiliser):** Only used in outdoor swimming pools to reduce the breakdown of hypochlorous acid by sunlight.

**Aluminium Sulphate (Rock Alum):** Used to promote flocculation or the drawing of undissolved solids together thereby aiding the filtration process.

**Algaecide:** Has been used in outdoor swimming pools during periods of closure (winter) to restrict the growth of algae. Not recommended.

**Sodium Thiosulphate:** Used to neutralise chlorine when a pool has been overdosed. Calcium Hypochlorite/Calcium Chloride/Calcium Sulphate: A Class 5.1 dangerous chemical, generally used to sanitise and increase calcium hardness. Soda Ash (Sodium Carbonate): A strong alkali powder or liquid which is used to increase pH.

**Sodium Bicarbonate (Buffer):** Is a weak alkali powder which is used to raise total alkalinity and pH.

**Diatomaceous Earth Powder:** Used as a filter media.

**Hydrochloric Acid (Muriatic Acid):** A dangerous acidic liquid used to rapidly reduce pH.

**Sodium Bisulphate (Dry Acid):** Is a dry acidic powder used to rapidly reduce pH.

**TITLE**                    **DEFINITIONS****DATE ISSUED**    1 July 1996**AUSTRALIAN RESUSCITATION COUNCIL (ARC)****AUSTSWIM**            The Australian Council for the Teaching of Swimming and Water Safety

**Bathing:** Generally 'public bathing' refers to swimming, moving slowly, floating or playing in a body of water (not private or home bath)

**Breathing Apparatus:** Self contained equipment with compressed air tank and face mask allowing access into a contaminated environment without risk to the wearer.

**Cardio Pulmonary Resuscitation (CPR)**

**Competency:** A pattern of related behaviour which is associated with effective or outstanding performance of a task or job. **Critical Incident Stress (CIS):** Sometimes referred to as Post-Trauma Stress and is an emotional, physical or mental reaction to a traumatic incident.

**Current:** The period during which a personal performance qualification is valid, eg, RLSSA Pool Lifeguard Award is current for 12 months.

**Debrief:** A review of an occurrence or activity and of its components.

**Dump Shower:** An item of equipment from which is released large volumes of fresh water, the purpose of which is to wash contaminants of a persons clothing or body.

**Emergency Action Plan (EAP):** A pre-determined, documented and rehearsed plan of action implemented on the witnessing or advice of the occurrence of an emergency (eg, fire, bomb threat, chemical spill).

**Expired Air Resuscitation (EAR):** Use of one person's expired air to inflate another's lungs by blowing into the nose or mouth.

**External Cardiac Compression (ECC):** Compression of a person's heart by applying external pressure on the person's sternum.

**Federation Internationale Natation Association (FINA):** The world-wide swimming sports organisation.

**General Purpose Outlet (GPO):** A power outlet to which an item of equipment operates on electricity is to be connected to allow correct operation.

**Gutter:** A channel around the edge of a swimming pool into which water flows for return to the filtration, heating and treating equipment.

**Lap Swimming:** Generally a formal swimming activity undertaken for exercise, rehabilitation and competition training within a defined lane of a swimming pool.

**Lazy River:** A channel of moving water through which a bather can walk or float in water travelling at less than 1.5m per second.

**Major Incident:** An incident which is classed as life threatening.

**Minor Incident:** An incident resulting in injury or damage which is not deemed to be life threatening.

**Multi Facility:** A Centre which houses a number of facilities such as multiple pools, sauna, steam room, gymnasium, staff and meeting rooms, spa pools, kiosks and creches etc.

**Normal Operation Procedure:** A procedure normally carried out on a day-to-day basis to ensure the smooth, safe, effective and efficient operation of a facility.

**Open Water:** Generally refers to lakes, bays, oceans, gulfs and any large open expanse of water.

**Periodic:** occurring at regular intervals.

**Personal Protective Equipment (PPE):** Equipment used, including clothing worn by persons requiring protection from a potential occupational hazard.

**Recreational Swimming:** Swimming and bathing for fun and recreation not necessarily in a defined area (eg, lane) or direction.

**Regular:** A normal occurrence.

**Risk Assessment Factor:** A measure of the quantity and potential risk of dangerous goods stored on premises.

**Shallow:** 'Not deep: having little depth'. Anecdotal evidence suggests that humans perceive a water level below their individual waist height as shallow water. The Royal Life Saving Society Australia (RLSSA)

**Training:** Education, instruction and practice through which one is able to demonstrate competency.

**Turbidity:** The state of quality of water. Unclear water.

**Wet Deck:** The pool concourse is essentially flush with the surface of the pool water. The pool water flows into the wet deck gutter(s) to return to the plant room.