TITLE: LIGHTNING PROTECTION	
Guideline Number: GO1303	**Issue Date: 3 / October / 2007**
Issue Status: 1.0	

PURPOSE:
To provide guidelines for the protection of the public from lightning in electrical storms.

> *In statistical terms, lightning poses a greater threat to individuals than almost any other natural hazard in Australia, accounting for five to ten deaths and well over 100 injuries annually. These figures are likely to increase in line with the growing proportion of people who are engaging in outdoor recreational activities.*
>
> *Lightning strikes can occur within the cloud, between clouds, or between clouds and the ground. An average thunderstorm can release several hundred megawatts of electrical power.*

SCOPE:
This Guideline applies to the following:

- All government authorities and agencies and those organisations responsible for the management and operation of coastal environments; and
- Those organisations experienced in public safety and responsible for the provision of public safety services.

For example:

- Coastal/marine park authorities and managers
- Lifesaving service providers
- Lifeguards and lifeguard supervisors

This Guideline applies to coastal environments, including ocean coastline and saltwater waterways that open to the oceans surrounding Australia.

GUIDELINE DESCRIPTION:

1.0 <u>General risk management</u>

Risk management should be integral to an organisation's operation.

The aim of risk management is to minimise losses and maximise opportunities that are closely aligned to improving safety; not only from the physical risk perspective, but including all risks associated with the use or operation of a particular area and activity.

Appropriate control measures for each area should be determined by the hazard rating of the area (e.g. ABSAMP Hazard Rating) and may include local environmental conditions such as weather and water, and other local conditions such as geography and population demographics.

A risk assessment should be conducted for all areas to which the public has ready access to identify not only risks, but also current control measures and their appropriateness.

a. All beaches at which it is known that swimming and other similar aquatic recreation occurs, and access to which is readily available, should have a risk assessment.
b. As part of the risk assessment, an analysis should be completed on whether or not a lifesaving service should be provided.
c. Coastal managers should identify any foreseeable hazards, assess their risks and take action to eliminate or control them.

2.0 Outdoor protection

2.1 The '30/30 Rule' is recommended for lightning safety in the outdoors. The rule is designed to provide guidance on the suspension and resumption of activities in an outdoor environment.

2.2 The 30/30 Rule sets out the following principles:

a. **Close beach:** When the flash-to-bang count is **30 seconds**, indicating that the lightning is 10 km away. This is associated with significant risk that the strike could be at the patrol arena.
b. **Open beach:** When **30 minutes** has passed since the last sighting of lightning. A typical storm travels at about 40 km/h. Waiting 30 minutes allows the thunderstorm to be approximately 20 km away.

2.3 Recommended actions

a. With an approaching thunderstorm, all persons should be advised to leave the water and clear the beach immediately.
b. The beach should be closed as in the standard operating procedure for 'Closing Beaches'.
c. The lifeguard patrol should retire to the shelter of the clubhouse/patrol base, maintaining a surveillance lookout from there.
d. Seek shelter in a 'hard top' vehicle or building — avoid small structures, patrol shelters, fabric tents, and isolated or small groups of trees.
e. If in the open and away from shelter, crouch down (singly), preferably in a hollow, with feet together and remove metal objects from head and body. Do not lie down, but avoid being the highest object in the vicinity.
f. If swimming, surfing or in a boat, leave the water immediately and seek shelter.
g. In the event of a special event, all effort should be made to ensure the safety of all personnel.
h. The event organiser(s) should make every effort to delay the event until the danger has passed or should cancel/postpone events completely.
i. Avoid the use of portable radios and mobile telephones during a thunderstorm. If emergency calls are required, keep them brief.

2.4 Outdoor pools such as rock pools

a. The presence of lightning around an outdoor swimming pool is a safety risk. The factors that need to be considered include:
    i. Metal signs
    ii. Light poles
    iii. Fencing
    iv. Structures such as diving towers. Precautions could include the erection of a lightning conductor higher than the dive tower.
b. People occupying the pool and pool surrounds should be requested to move to a covered area, which provides sufficient electrical earth for a lightning strike.
c. Access to the pool and its surrounds should be allowed only when the storm has moved further than 10 km away or has subsided.

3.0 Indoor protection

3.1 Recommended actions

a. Avoid the use of telephones, radios, fax machines, computers and other electrical equipment. If emergency calls are required, keep them brief.
b. Before the storm arrives, disconnect external aerials and power leads to radios and other appliances.

4.0 First aid

4.1 The normal emergency care procedures apply to any patients affected by lightning strikes.

4.2 Ensure that the rescuer is in no danger of being struck by lightning.

4.3 If the patient is not breathing, commence resuscitation immediately.

5.0 Monitoring

5.1 If storms have been predicted or are visible, Bureau of Meteorology warnings should be monitored.

DEFINITIONS:

Lightning means 'the discharge produced when differences between ground and atmospheric electrical charge are large enough (several hundred million volts) to overcome the insulating effects of air'.

Thunder means 'the sound produced by the explosive action of air heated by the lightning strike to temperatures a high as 20,000 degrees Celsius'.

REFERENCES:

National Oceanic and Atmospheric Administration, www.noaa.gov/lightning, www.lightningsafety.noaa.gov/

Makdissi M, Brukner P. Recommendations for lightning protection in sport. *Medical Journal of Australia* 2002; 177: 35-37. http://www.mja.com.au/public/issues/177_01_010702/mak10009_fm.html

APPENDICES:

Nil