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## **LIGHTNING SAFETY PROCEDURES - DECEMBER 2006**

### **1. Lightning Safety Plan**

- Thunderstorms can produce different types of severe weather hazards, including lightning;
- Each year, a number of related casualties occur during outdoor sport and recreational activities;
- Accordingly, it is considered appropriate that all Race Clubs implement a lightning safety plan to promote the safety of all employees, contractors, participants and spectators;
- Racing NSW believes that the most practical strategy by which such an objective can be achieved is through implementation of what is commonly known as the “30/30” rule, supported by other supplementary measures. These are detailed below.

### **2. Forward Planning**

- The Bureau of Meteorology provides free, constantly-updated information on weather forecasts including thunderstorm activity and severe thunderstorm warnings;
- Radar traces of approaching storm cells are also available;
- All such information is located on the Bureau’s website, which may be found at the following internet address:  
<http://www.bom.gov.au>
- Accordingly, clubs should maintain a heightened level of awareness in respect of weather forecasts at all times, and seek additional information from the above source if thunderstorms are forecast.

### **3. The 30/30 Rule**

- The 30/30 rule relates to the duration between the flash of lightning and clap of thunder, which describes the proximity of a storm cell;
- It is used as a measure of the imminence of the storm and therefore as a denominator in deciding whether to suspend outdoor activities;

- The rule of thumb is that every three (3) seconds of delay between a lightning flash and the audible thunder associated with the flash equates to a distance of approximately one (1) kilometre;
- Accordingly, the thirty (30) seconds flash-to-thunder time interval suggests that the lightning activity is approximately ten (10) kilometres away;

**(a) Suspension of Activity**

- As part of any lightning safety plan, clubs should therefore incorporate a rule which requires all persons to take cover if the flash-to-thunder delay is thirty (30) seconds or less;

**(b) Resumption of Activity**

- Furthermore, all persons must remain under cover until thirty (30) minutes after the final flash of lightning or clap of thunder, as trailing storm clouds still carry a lingering charge;

**(c) Summary**

- In summary:
  - 30 seconds: Count the number of seconds between observing lightning and hearing thunder. If this time period is thirty seconds or less, take cover as the lightning is sufficiently close to represent a hazard;
  - 30 minutes: After observing the final lightning or hearing the final thunder, remain under cover for thirty minutes to ensure the hazard has passed.

**4. Safe Locations to Seek Cover**

- the following locations would normally be regarded as the most appropriate to seek shelter:
  - the safest location is inside a large enclosed structure, preferably with electrical/telephone wiring and plumbing (to provide a safe pathway to the ground for any current), but keeping away from doors, windows, metal fittings and devices connected to the electricity supply;
  - an enclosed metal vehicle (such as a car, van or bus);

**5. Unsafe Locations**

- the following locations should be avoided:
  - buildings with exposed openings;
  - small structures or sheds;
  - open field/racecourse;
  - in close proximity to the tallest localised structure (eg. surveillance tower, tree, light pole, antenna, etc);
  - umbrellas;
  - swimming pools, lakes or water generally (eg. showering).

- persons should also refrain from contacting metal objects or using the telephone, computers or any other devices connected to electrical/phone lines.

## **6. Responsibilities**

- it is the responsibility of the club to implement an effective Lightning Safety Plan and ensure all employees/representatives are aware of the procedures;
- it is also imperative that a designated person be given responsibility for monitoring any signs of approaching storms and implementing the Lightning Safety Plan, as follows:
  - on racedays, the Club Secretary Manager/Chief Executive & the Chief Steward should ensure that the Lightning Safety Plan is implemented;
  - on non-racedays (eg. during commercial functions or similar), the Club Secretary Manager/Chief Executive or a delegated representative should ensure implementation of the Lightning Safety Plan;
  - during trackwork, the Trackwork Supervisor or Crossing Attendant should ensure implementation of the Lightning Safety Plan.

## **7. Dissemination of Information**

- Clubs should ensure that all persons on-course are aware of the existence of a Lightning Safety Plan. This can be achieved through a number of means including:
  - Strategic placement of notices in all work & public areas detailing procedures for suspension & resumption of activity plus designated shelter areas;
  - Preparation and distribution of information sheets to all frequent venue users (eg. club employees, trainers, jockeys, trackwork riders, etc.)
  - Broadcast of on-course messages (on raceday) detailing such information where there exists the probability of storm activity.

## **8. First Aid**

- If a person has been struck by lightning, immediately seek medical assistance and/or an ambulance; however first aid is required urgently. Expired Air Resuscitation (“EAR” – more commonly known as “mouth-to-mouth” resuscitation) can be applied if a person is not breathing but still has a pulse. In the absence of a pulse, cardiopulmonary resuscitation (“CPR”) should be used.

## **9. Other Lightning Protection Measures**

- Clubs can provide enhanced lightning protection through adoption of other measures including:

- ensuring that all freestanding structures (eg. surveillance towers) satisfy relevant statutory standards. In this regard, Australian Standard AS/NZS 1768 (Int) 2003 sets out guidelines for the protection of persons and property from hazards arising from lightning. The recommendations detail protection both outdoors (where persons/property are at risk from the direct effects of a lightning strike) and indoors (where the risk is indirect as a result of lightning currents being conducted into the building);
- installation of an Electrical Storm Identification Device. Lightning Warning Systems are local warning instruments designed to provide early warning of an approaching storm front that contains lightning discharges. Such systems generally comprise a main console, antenna assembly, electrical siren plus associated components and deliver an audible warning/alert once lightning activity has been detected. Basic systems retails for less than \$10,000 (incl. GST) from suppliers such as Tercel International P/L (ph. 07 3314 8801).

## **10. Acknowledgments:**

- “Recommendations for Lightning Protection in Sport”, Michael Makdissi and Peter Brukner, Medical Journal of Australia (<http://www.mja.com.au/public>)
- “Lightning Safety”, Matt Bragaw, National Weather Service ([http://www.srh.noaa.gov/srh/jetstream/lightning/lightning\\_safety.htm](http://www.srh.noaa.gov/srh/jetstream/lightning/lightning_safety.htm))
- “Safety Procedures”, Lightning and Surge Technologies: (<http://www.lightningman.com.au>)
- “On-line medical dictionary” (<http://www.wrongdiagnosis.com>)