

Safety and health alert

17/07 Tropical cyclones

Incident

Severe Tropical Cyclone George crossed the Western Australian coast near Port Hedland at 10pm on Thursday, 8 March 2007, causing extensive damage to areas in the far north of Western Australia. A Red Alert had been issued for Port Hedland. It was the most destructive cyclone to affect Port Hedland since Cyclone Joan in 1975. Information provided on the Bureau of Meteorology (BoM) website at the time indicated that Tropical Cyclone George was forecast to be Category 4 at the coast, and track between Port Hedland and Pardoo as a Category 3 weakening after going inland.

The actual intensity of TC George proved to be higher than forecast, it travelled a different path and retained its intensity after landfall. The eye reportedly passed over the FMG Pilbara Infrastructure rail project accommodation camp situated approximately 90 kilometres from the coast.

In preparation for the cyclone it was decided to not evacuate the FMG Pilbara camp based on the forecast development and path of the cyclone not being right through the camp. The camp was prepared for the expected weather and all workers returned to the camp to be housed in their normal accommodation.

The rail camp/village was a temporary camp of transportable units (dongas) built to accommodate a 280 strong construction workforce for the duration of the construction phase of the project.

The wind associated with TC George displaced some dongas, which impacted with adjacent dongas when they broke away from their tie-downs. Some dongas broke into pieces and those pieces caused further damage to other dongas. At the time there were about 230 workers at the camp.

The cyclone resulted in two fatalities and 22 notified injuries at the camp.

Factors to Consider

- The cyclone was expected to impact the coast as a Severe Tropical Cyclone (Category 3, 4 or 5).
- The track of the cyclone developed to be through the camp.
- TC George weakened more slowly than is typical for intense systems making landfall.
- The camp was not evacuated.
- There were no cyclone shelters.
- Workers were directed to stay in their normal accommodation.
- Some dongas broke loose from their tie-downs.
- Extensive damage was caused by loose building material.



Recommendations

Cyclone Preparedness:

Irrespective of the distance from the coastline, cyclones do penetrate from the coastal areas into the inland regions of Western Australia, as evidenced by the history of cyclones in the North-West of Western Australia on the Bureau of Meteorology website.

Given the limited predictability of cyclones in terms of intensity, speed and direction, duty holders under the *Occupational Safety and Health Act 1984* are advised to err on the side of caution in relation to the design and construction of buildings and other structures and in the development of emergency plans and procedures.

Building Standards:

The Australian/New Zealand Standard 1170.2:2002 sets out the wind speeds to be used for design purposes. AS/NZ1170.2:2002 divides Australia into wind regions (three regions for the most part of Australia and four regions along the Western Australian North West coastline) as follows:

- Region A4:** from a distance greater than 150 km from a smoothed coastline;
- Region B:** within the distance of 100 to 150 km from a smoothed coastline;
- Region C:** within the distance of 100 to 50 km from a smoothed coastline; and
- Region D:** within the distance of 0 to 50 km from a smoothed coastline.

Duty holders should seek engineering advice on the construction standards applicable to each wind region to ensure every accommodation unit or donga, transportable building and cyclone shelter on worksites and camps in cyclone sensitive regions is adequately designed and constructed in accordance with "Design Guidelines for Australian Public Cyclone Shelters" by Queensland Public Works for Emergency Management Australia and Australian/New Zealand Standard 1170.2:2002 Wind Regions.

Emergency Procedures and Plans:

In accordance with Regulation 3.10 of the *Occupational Safety and Health Regulations 1996*, every employer must develop emergency procedures and plans in conjunction with advice from FESA and other regional emergency planning groups in their location.

It is a requirement that all personnel are trained and inducted in these procedures and that practical tests of the procedures/plans are carried out at appropriate intervals.

Duty holders should consider evacuation of staff and details for making the site safe, including the removal/restraint of loose objects and structures in their procedures. In situations where an informed decision to remain on site is taken as part of the procedures, appropriate cyclone shelters should be utilised, emergency provisions and water considered, backup communications and power planned for.

Should evacuation of non-essential personnel from the worksite or camp to a predetermined suitable location be considered as part of the plan, this should occur in the Blue and Yellow Alert Cyclone Warning phase, before high winds are experienced.

When employees remain on site during a cyclone, they should be moved to a designated appropriate shelter well in advance of the arrival of the cyclone to avoid being injured during the transfer to shelters.

Where employees are required to stay on site, adequate stocks of food and other essential items should be available during the period when the site may be cut off due to high winds or flooding.

During the Red Alert Cyclone Warning phase when all power has to be isolated or in the eventuality of damage or interruption to the power supply or telephone and other communication systems, an adequate means of reliable emergency backup communication should be available on site to make contact with external emergency services should assistance be required.

Each site should continuously monitor cyclone warnings issued on radio, television or via the internet connection to the Bureau of Meteorology or FESA websites. In the event of power interruptions on site, battery-powered radios should be available.

All employers in cyclone sensitive regions are requested to review their cyclone procedures as a result of this Safety and Health Alert and the recommendations made above. Additional information covered in this Safety and Health Alert on preparing for cyclones can be found on the following websites or locations.

Further Information

- Bureau of Meteorology www.bom.gov.au
- Fire and Emergency Services Authority www.fesa.wa.gov.au
- Building Code of Australia www.aib.org.au/buildingcodes/bca.htm
- Design Guidelines for Australian Public Cyclone Shelters - by Emergency Management Australia
- www.ema.gov.au and search for Cyclone Shelters

Further information on injury notification can be obtained from the WorkSafe internet site www.worksafe.wa.gov.au, or by contacting customer service on 1300 307 877 or email safety@docep.wa.gov.au.