Safety bulletin

MINES

Mines Inspectorate
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Severe weather events

Issues related to severe weather events – at all mines, quarries and exploration activity sites

Introduction

Normally, between October and April, severe summer storms can be expected in Queensland. In recent years, the rapid onset of severe, often localised, 'mini cyclone' type storms has caused serious injury and destroyed property at mines. This can be mitigated when mining organisations operate effective systems, incorporating safe refuges for mineworkers, adequate warnings and persons trained to respond to those warnings.

The latest severe weather event caused serious injury at a coal mine, resulting in a 'postal' mine record entry (basically worded as below) and a directive being issued to the site senior executives (SSEs) of all operating coal mines. Also, in some cases, operators of metalliferous mines and quarries were contacted by their regional Inspectorate, particularly regarding the need to have an operational emergency response plan for severe weather events, including a system to adequately secure 'dongas' and similar buildings.

This notice provides guidance and strong recommendations to SSEs on actions to ensure that risk of injury is at an acceptable level.

In this bulletin, both generally and specifically relevant references are made to the:

- *Mining and Quarrying Safety and Health Act 1999* (MQSHA)
- *Mining and Quarrying Safety and Health Regulation 2001* (MQSHR)
- *Coal Mining Safety and Health Act 1999* (CMSHA)
- *Coal Mining Safety and Health Regulation 2001* (CMSHR).

Requirements to mitigate the risk of severe weather events

So that the risk of injury from severe weather events at a mine or quarry is kept at an acceptable level, the site's safety and health management system (SHMS) must include, but not be limited to, the following legislative requirements:

- **Identification, by risk assessment, of potential emergency situations** caused by a severe weather event, is required by sections 6 and 7, MQSHR, and Section 35(2)(a), CMSHR.
- Provide adequate means of **identifying and warning potentially affected persons** of the onset of severe weather events, a system of evacuation or moving people to a 'place of safety' (sections 8, 32(1)(a) and (b), MQSHR, and section 35(2)(b), CMSHR) and **necessary action to be taken where risk is not within acceptable limits** (section 252, MQSHA, and section 273, CMSHA).

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- A system must be in place to ensure that **temporary and semi-permanent relocatable structures located on a mine are adequately designed, constructed and anchored** (section 32(1)(a), MQSHR, and section 35(2)(b), CMSHR).
- An **adequate emergency response and aided rescue system** must be in place in case a severe weather event causes injury, entrapment or damage to infrastructure (section 32(2)(c), MQSHR and section 35(2)(c), (d) and (e), CMSHR).

Expanding on these requirements:

(1) Potential emergency situations caused by a severe weather event

Section 32, MQSHR and section 35, CMSHR, require the SSE to ensure the mine's risk management process caters for foreseeable emergency situations, such as severe weather events. Therefore, the SSE must ensure there are adequate resources, facilities and procedures in place to implement an effective management program, which maintains the risk of hazards from severe weather events at an acceptable level.

Typical 'severe weather' events, including high velocity destructive winds, lightning strikes and heavy rain causing flash flooding, have the potential to affect surface structures, persons in unsafe open or enclosed areas, and persons in the vicinity of charged blast holes. Underground mine operations could be affected by flash flood inundation, the potential for lightning to disrupt computer based control and communication systems and transference of electrical energy underground.

(2) Severe weather event warning and evacuation of persons

A mine needs to monitor, identify and evaluate, in a timely manner, the onset of any severe weather event with the potential to adversely impact the site and cause an unacceptable level of risk.

When such an event is considered likely, there must be a system in place to allow for evacuation of anyone potentially exposed, to a specifically designated 'place/s of safety' (section 252(2) and (4), MQSHA and section 273(1), CMSHA). Such places should be identified through risk assessment as maintaining the risk of injury at an acceptable level.

Mines, quarries or exploration projects should consider developing a Targeted Action Response Plan (TARP) based on warnings and observations, to assess and communicate the onset of severe weather events to anyone potentially affected, and ensure their timely evacuation to a 'place of safety'.

(3) Adequately designed, constructed and anchored relocatable structures

Various parties have obligations, under mining safety and health legislation, to ensure that the risk of injury to a person at a mine, or as a result of mining operations, is at an acceptable level. Regarding the structural design and integrity of relocatable units, the designer, manufacturer and/or supplier (section 41, MQSHA and section 44, CMSHA) and the erectors and installers of plant (section 42, MQSHA and section 45, CMSHA) have specific obligations. The SSE, the mine operator and site based contractors using such structures also have general obligations.

Transportable or relocatable buildings are commonly used on mines as accommodation units, facilities, offices, crib rooms, etc., and fall into two general categories:

1. The single or multi-modular semi-permanent (or permanent) units mounted and anchored to pre-established concrete/steel pedestals and/or other specifically designed anchoring points.
2. The single modular (commonly known as a 'donga') type units normally used in field locations, surface mines and exploration projects. Used for specific short term purposes, such as field offices, crib rooms and/or ablution facilities for short term maintenance or mining projects, they are likely to be relocated on a daily, weekly or monthly basis. When regularly relocated, these units are often constructed as a tow-a-bout trailer configuration.

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Observations and points for consideration include:

- The main concerns relate to the relocatable 'donga' type units, where, due to their temporary installation, the anchoring system is often inadequate – consider devising an adequate anchoring system and developing a TARP.
- Design, construction and placement standards need to be in place and known to stakeholders – consider relocatable units designed, constructed and placed to withstand a specified wind speed rating (e.g. w50c – 50 m/sec).
- Dongas typically have a single doorway and security barred windows – consider the need to have at least one window and bar grill (in the wall opposite the door or end wall) that can be readily opened from the inside as a second means of egress, and whether the unit needs to have security grills at all.
- Many dongas (particularly older types) have hot water urns and unsecured items such as fridges and tables that can potentially injure any occupants in the event of rollover – consider replacing urns by hot water closet heaters, and adequately securing other heavy items.

We highly recommend that your consideration of severe weather events includes the information and recommendations above.

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Please ensure all relevant people in your organisation receive a copy of this Safety bulletin. Any such advice supplied to site should reach those who require it, and it should also be placed on the mine notice boards.

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www.dme.qld.gov.au/mines/safety_information___bulletins.cfm

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