

New dangerous incident type identified in Work Health and Safety (Mines and Petroleum Sites) Amendment Regulation 2018

Clause 179 of the Work Health and Safety (Mine and Petroleum sites) Regulation 2014 prescribes dangerous incidents for the purposes of section 14(c) of the *Work Health and Safety (Mines and Petroleum Sites) Act 2011*. With the amendment regulation coming into effect on the 13 April 2018, three additional incident types are now required to be reported:

- clause 179(h) – spontaneous combustion at a coal mine
- clause 179(i) – a gas outburst at an underground coal mine
- clause 179(j) – a coal burst or rockburst at an underground mine

This fact sheet provides guidance to mine operators on a coal burst or rockburst at an underground mine.

Mining induced seismic activity

Rockburst and coal burst events are associated with mining induced seismic activity; that is, an event that has been triggered by some form of mining process or activity and not naturally-occurring seismic events such as earthquakes. Examples include seismicity associated with caving rock failure, high stress abutments causing yielding/failure ahead of a development face or production region, pillar failure or other burst-type event or activation of a major fault or discontinuity.

The actual seismic event may be in close proximity to a mining excavation, or may be some distance away within the intact rock mass, although the consequent damage may be in or around an excavation, some distance from the event location.

It is recognised that many terms are used by the Australian mining industry for rockburst or coal burst events. The listing below are terms that are considered appropriate for the Australian mining context.

Notifiable mining induced seismic activity

Rockburst:

A dynamic release of strain energy stored in the rock mass (intact or on discontinuities) resulting in large scale rock displacement and/or failure of intact rock, such that the rock fragments or material are expelled into the mining excavation.

The source of the energy is directly related to stress levels within the rock mass, albeit that the manifestation of the stresses and the related stored energy, its location, and the triggers for the release of the energy can be quite complex, involving many factors.

Strain burst:

A strain burst is a form of rockburst, but involving lower levels of energy release.

Pressure burst:

A pressure burst is a generic term to describe a rock or strain burst in a coal mine, involving release of stored strain energy that causes dynamic failure or displacement of intact rock/coal, resulting in high velocity expulsion of this broken/failed/displaced material into the mine opening.

The energy levels, and hence velocities involved here can cause significant damage to, or destruction of conventional installed ground support elements such as bolts and mesh.

Coal burst:

The term coal burst is synonymous with pressure burst, but refers specifically to a pressure burst event that expels coal into the mine opening, as opposed to rock from roof or floor.

Pillar burst:

The term pillar burst is a specific sub-set of pressure or coal bursts, and refers to an event that involves dynamic failure of a region of pillars due to the stored strain energy within the pillar system, resulting in expulsion of the failed coal into the adjacent roadways, and usually the collapse of the pillar system involved.

Non-notifiable mining induced seismic activity

The following events are not deemed to be notifiable, however, these events may be an indicator of increasing rockburst or coal burst potential and the mine operator should investigate further.

Shake-down:

A shake-down describes the consequence of a triggering seismic event that results in pre-existing loose or broken rock material on the boundary of an excavation displacing or falling into the excavation, primarily under the effect of gravity.

A shake-down does not involve failure or displacement of intact rock. The triggering event would be a seismic event within the rock mass (local or distant).

Pressure bump:

A pressure bump is a lower level of dynamic energy release (compared to a pressure burst) within the rock (or coal) mass in a mine, often due to a more remote seismic event or displacement along a geological structure, that generates - an audible signal; ground vibration; and has the potential for displacement of existing loose or fractured material into mine openings. A pressure bump does not involve intact rock failure and associated expulsion.

A pressure bump is also sometimes referred to as a bounce.

Coal bump:

The term coal bump is synonymous with pressure bump (in the same way that coal burst is synonymous with pressure burst).

Pillar bump:

The term pillar bump is synonymous with pressure bump (in the same way that coal burst is synonymous with pressure burst), and specifically refers to a bump occurring within a system of pillars.

Face spitting:

Coal spitting from a face is a form of very low-level, energy-related dynamic failure, and may produce a very, small seismic signal, but is NOT considered as a coal or pressure burst, unless there is significant damage to the face profile as a result.

(This can also be referred to as rib spitting or pillar spitting, depending on the location of the event).

What you are required to do after a dangerous incident

If there is a **dangerous incident**, you must:

- make the area safe, if needed
- report the incident to the NSW Resources Regulator immediately by phoning 1300 814 609 (24 hours a day, 7 days a week)
- preserve the site where the incident occurred until it is released by an inspector
- provide us with further information about the incident as soon as practicable and within 48 hours (we will send you and the mine operator an email with a link to provide us with further information).

Further information

www.resourcesandgeoscience.nsw.gov.au/miners-and-explorers/safety-and-health/notifications/incident-or-injury

© State of New South Wales through the NSW Department of Planning and Environment 2018.

This publication is copyright. You may download, display, print and reproduce this material in an unaltered form only (retaining this notice) for your personal use or for non-commercial use within your organisation. To copy, adapt, publish, distribute or commercialise any of this publication you will need to seek permission from the NSW Department of Planning and Environment.

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (August 2018). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of the NSW Department of Planning and Environment or the user's independent advisor.

PUB 18/146