

Queensland



Subordinate Legislation 2001 No. 15

*Coal Mining Safety and Health Act 1999*

**COAL MINING SAFETY AND HEALTH  
REGULATION 2001**

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## **CHAPTER 1—PRELIMINARY**

### **Short title**

1. This regulation may be cited as the *Coal Mining Safety and Health Regulation 2001*.

### **Commencement**

2. This regulation commences on 16 March 2001.

### **Definitions**

3. The dictionary in schedule 9 defines particular words used in this regulation.

## **CHAPTER 2—ALL COAL MINES**

### **PART 1—PRELIMINARY**

#### **Application of ch 2**

4. Unless otherwise stated, this chapter applies to both surface mines and underground mines.<sup>1</sup>

#### **Ways of achieving an acceptable level of risk**

5.(1) This chapter, other than sections 47(3) and 52(1),<sup>2</sup> prescribes ways of achieving an acceptable level of risk at a coal mine in the circumstances mentioned in the chapter.

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<sup>1</sup> See also chapters 3 (Surface mines) and 4 (Underground mines).

<sup>2</sup> Sections 47 (Employer's responsibility for health assessment) and 52 (Confidentiality of medical record)

(2) However, this chapter does not deal with all circumstances that expose someone to risk at a coal mine.

(3) A person may discharge the person's safety and health obligation in the circumstances mentioned in this chapter only by following the prescribed ways.<sup>3</sup>

## **PART 2—SAFETY AND HEALTH MANAGEMENT SYSTEM**

### *Division 1—General*

#### **Basic elements**

6. A coal mine's safety and health management system must provide for the following basic elements—

- (a) risk identification and assessment;
- (b) hazard analysis;
- (c) hazard management and control;
- (d) reporting and recording relevant safety and health information and data.

#### **Keeping information and data on which risk assessment is based**

7. The site senior executive must ensure a copy of each risk assessment for the mine, and information and data on which it was based, is kept at the mine until it is superseded or the hazard to which it relates is no longer at the mine.

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<sup>3</sup> See section 34 (Discharge of obligations) of the Act for the penalty for failing to discharge the obligation.

**Notification of safety and health issues—generally**

**8.(1)** A coal mine's safety and health management system must provide for effective notification to each person at the mine of the following matters—

- (a) protocols for taking action in life threatening situations;

*Example—*

CPR protocols.

- (b) emergencies, and the location of known hazards, affecting the person's safety or health.

**(2)** The system must include provision for the following—

- (a) giving the person immediate notification of matters relevant to the person's safety and health during coal mining operations;

*Example—*

A notification about slippery road conditions.

- (b) the prompt summoning of assistance in an emergency;
- (c) assistance from external entities in an emergency;
- (d) communicating with the external entities;
- (e) access by inspectors to the external entities' contact details;
- (f) access by an inspector in the district in which the mine is located to an emergency contact number for the mine;
- (g) for a surface mine—giving notification of known hazards in and around a surface excavation, including areas where mining activities are taking place, to the open-cut examiner responsible for the excavation;
- (h) for an underground mine—giving notification of known hazards in an ERZ to the ERZ controller for the zone.

***Division 2—Standard operating procedures*****Application of requirement to have a standard operating procedure for a hazard**

9. A requirement under this regulation for a coal mine to have a standard operating procedure for a hazard applies only if the hazard is at the mine.

**Developing standard operating procedures**

10.(1) The site senior executive must ensure the following steps are taken in developing standard operating procedures for managing and controlling hazards at the mine—

- (a) the site senior executive must consult with a cross-section of the mine's coal mine workers involved in carrying out a task under the proposed standard operating procedure to identify the hazards associated with the task and ways of controlling the hazards;
- (b) the site senior executive must prepare a draft standard operating procedure and give a copy of it to the coal mine workers with whom the site senior executive consulted;
- (c) if the coal mine workers agree with the draft standard operating procedure, the site senior executive must prepare it as the final standard operating procedure;
- (d) if the coal mine workers do not agree with the draft standard operating procedure—
  - (i) for a disagreement that is not about a legal or technical matter—the site senior executive must decide the disagreed matter and prepare the final standard operating procedure; or
  - (ii) for a disagreement that is about a legal or technical matter—the site senior executive must—
    - (A) obtain further information or advice, including, for example, from a person having the necessary qualifications and experience to give the advice or from a recognised text on the matter; and
    - (B) after consulting with the workers about the information

or advice, prepare a further draft standard operating procedure and give a copy of it to the workers; and

(C) if the workers disagree with the further draft—decide the disagreed matter and prepare the final standard operating procedure;

(e) the site senior executive must include the final standard operating procedure in the mine's safety and health management system.

(2) The site senior executive must ensure—

(a) the final standard operating procedure accords with—

(i) all matters agreed, under this section, between the site senior executive and coal mine workers; and

(ii) the site senior executive's decision, under this section, on any disagreed matters; and

(b) a record is kept of the disagreed matters.

(3) In developing the standard operating procedure, the site senior executive must—

(a) use a risk assessment process recognised by the mining industry as an acceptable process for identifying and controlling hazards; and

(b) have regard to the methods of controlling the hazard stated in the database kept by the chief executive under section 280(1)(a)(i) of the Act.<sup>4</sup>

(4) If, at the commencement of this section, the mine has a standard operating procedure for managing and controlling a particular hazard at the mine, the procedure is taken, until 1 March 2002, to have been developed under this section.

### **Accessing standard operating procedures**

**11.** The site senior executive must ensure—

(a) a list of the mine's current standing operating procedures is kept

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<sup>4</sup> Section 280 (Chief executive to keep records) of the Act

at the mine in a location that is easily accessible by each coal mine worker at the mine; and

- (b) a copy of the current standard operating procedure for a particular activity at the mine is available to, and is kept in a location that is easily accessible by, each coal mine worker carrying out the activity; and

*Example of a location that is easily accessible for an underground coal mine worker—*

A crib room.

- (c) the list and each standard operating procedure is kept in a format that is easy to use and understand.

### ***Division 3—Recognised standards***

#### **Accessing recognised standards**

**12.** The site senior executive must ensure—

- (a) a list of the current recognised standards for the mine's coal mining operations is kept at the mine in a location that is easily accessible by the mine's coal mine workers; and
- (b) a copy of the current recognised standard for a particular coal mining operation is available to, and easily accessible by, each coal mine worker engaged in the operation at the mine; and
- (c) the list and each recognised standard is kept in a format that is easy to use and understand.



## **PART 3—ACCIDENTS, HIGH POTENTIAL INCIDENTS AND INJURIES**

### **Notice of serious accidents and high potential incidents**

**13.** For section 198 of the Act,<sup>5</sup> the types of serious accidents and high potential incidents that must be notified to an inspector and industry safety and health representative include the types stated in schedule 1.<sup>6</sup>

### **Prescribed types of serious accidents and high potential incidents—Act, ss 200 and 201**

**14.(1)** A type of serious accident or high potential incident mentioned in schedule 2, part 1, is prescribed for section 200(1) of the Act.<sup>8</sup>

**(2)** A type of serious accident or high potential incident mentioned in schedule 2, part 2, is prescribed for section 201(1) of the Act.<sup>9</sup>

### **Investigating accidents and incidents**

**15.(1)** A coal mine's safety and health management system must provide for the following—

- (a) the procedure for investigating accidents and incidents at the mine;
- (b) making the investigation findings available to the mine's coal mine workers;
- (c) implementing corrective action for accidents and incidents.

**(2)** The procedure for investigating accidents and incidents must include

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<sup>5</sup> Section 198 (Notice of accidents, incidents or diseases) of the Act

<sup>6</sup> Schedule 1 (Types of serious accidents and high potential incidents for section 198 of the Act)

<sup>7</sup> Schedule 2 (Types of serious accidents and high potential incidents for sections 200(1) and 201(1) of the Act)

<sup>8</sup> Section 200 (Site not to be interfered with without permission) of the Act

<sup>9</sup> Section 201 (Action to be taken in relation to site of accident or incident) of the Act

the involvement of—

- (a) for accidents and incidents in or around the surface excavation at a surface mine—
  - (i) the open-cut examiner responsible for the excavation and on duty when the accident or incident happened; or
  - (ii) if it is not practicable to involve the open-cut examiner mentioned in subparagraph (i)—another open-cut examiner responsible for the excavation; or
- (b) for accidents and incidents at an underground mine—
  - (i) the ERZ controller for the ERZ in which the accident or incident happened who was on duty when it happened; or
  - (ii) if it is not practicable to involve the ERZ controller mentioned in subparagraph (i)—another ERZ controller for the zone.

### **Giving notice of incidents**

**16.(1)** The site senior executive must give an inspector notice, in the approved form, about a following incident at the mine within 1 month after it happens—

- (a) a person suffers an injury—
  - (i) requiring treatment by a—
    - (A) doctor, or nurse under the *Nursing Act 1992*; or
    - (B) person qualified to give first aid; or
  - (ii) preventing the person from carrying out the person's normal duties at the mine;
- (b) a high potential incident not mentioned in paragraph (a).

**(2)** A mine's safety and health management system must include procedures for—

- (a) telling a site safety and health representative about the things

mentioned in section 106 of the Act;<sup>10</sup> and

- (b) giving notice to an inspector and industry safety and health representative under section 198 of the Act.<sup>11</sup>

## **PART 4—ELECTRICAL ACTIVITIES, EQUIPMENT AND INSTALLATIONS**

### *Division 1—Electrical activities*

#### *Subdivision 1—Controlling and managing electrical engineering activities*

#### **Qualifications for appointment as electrical engineering manager**

**17.** A person may appoint a person as an electrical engineering manager only if the person has the recognised competencies for controlling and managing the mine’s electrical engineering activities.

#### **Duties of electrical engineering manager**

**18.** The duties of an electrical engineering manager include controlling and managing the following at the mine—

- (a) the design of electrical installations;
- (b) the installation and maintenance of electrical equipment and electrical installations;
- (c) electrical work;
- (d) work carried out close to electrical installations.

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<sup>10</sup> Section 106 (Site senior executive to tell site safety and health representatives about certain things)

<sup>11</sup> Section 198 (Notice of accidents, incidents or diseases) of the Act

***Subdivision 2—Other provisions about electrical activities*****Duty to give notice of proposed introduction of electricity**

**19.** Before electricity is introduced at a coal mine for use in coal mining operations, or after it is permanently disconnected, the site senior executive must notify an inspector of the proposed introduction, or disconnection.

**Competencies of persons carrying out work on electrical equipment**

**20.(1)** Subject to subsection (2), only a person who has the recognised competency for repairing, overhauling and maintaining electrical equipment for explosive atmospheres may carry out the following work at a coal mine—

- (a) electrical work in an ERZ;
- (b) work on electrical equipment used in an ERZ;
- (c) work on extra low voltage systems associated with explosion protected equipment and installations;
- (d) work on explosion protected electrical equipment installed at a surface mine;
- (e) electrical work in an area, at a surface mine, that a risk assessment shows has an explosion risk.

**(2)** Only a person who has the recognised competency for repairing, overhauling and maintaining electrical equipment for mobile plant used in underground mines may carry out work on extra low voltage systems associated with mobile plant for an underground mine.

**Access to exposed electrical conductors**

**21.(1)** A coal mine must have a standard operating procedure for safely accessing exposed electrical conductors at the mine.

**(2)** The procedure must provide for minimising the risk of energising exposed electrical conductors on which work is to be carried out, including, for example, by using personal locks or danger tags or both personal locks and danger tags.

(3) The procedure must also provide that before work is carried out on an exposed electrical conductor at above extra low voltage it must be—

- (a) positively isolated from the electricity source; and
- (b) tested for zero potential; and
- (c) if it is a high voltage conductor, earthed.

(4) Subsection (5) applies only to a surface mine and only if—

- (a) it is not practicable to positively isolate the conductor from the electricity source; and
- (b) access to the conductor is required or work in close proximity to the conductor is required to be carried out.

(5) The procedure must also provide that—

- (a) a risk assessment, including consideration of high fault currents, must be carried out before the work is carried out; and
- (b) if the risk assessment shows an unacceptable level of risk in carrying out the work with the conductor energised, before the work is carried out, the conductor must be—
  - (i) positively isolated from the electricity source; and
  - (ii) tested for zero potential; and
  - (iii) if it is a high voltage conductor, earthed.

(6) In this section—

**“close proximity”**, to a conductor, means—

- (a) for a person—
  - (i) for a high voltage conductor—within the approach limits for the conductor prescribed under the *Electricity Act 1994*;<sup>12</sup> or
  - (ii) for a low voltage conductor—within reach of the conductor; or
- (b) for plant being used for work near an overhead power

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<sup>12</sup> See *Electricity Regulation 1994*, section 131 (Prescribed approach limits to exposed high voltage conductors or electrical articles)

line—within the minimum clearances required under AS 3007.5, section 3.<sup>13</sup>

### **Locating and dealing with electrical faults**

**22.(1)** A coal mine must have a standard operating procedure for re-energising an electrical circuit at the mine that has been switched off by a circuit protection device.

**(2)** A person may use electrical energy, other than electrical energy generated from appropriately designed test instruments, for locating, isolating or clearing only the following electrical faults—

- (a) an overload of an electric motor;
- (b) an earth leakage trip associated with an impedance earth circuit;
- (c) a 30 mA earth leakage trip;
- (d) an earth continuity trip.

## ***Division 2—Electrical equipment and installations***

### ***Subdivision 1—General***

#### **Design, installation and maintenance**

**23.** The site senior executive must ensure the design, installation and maintenance of electrical equipment and installations at the mine provide for the following—

- (a) reliable circuit interruption, under fault conditions, at all points in the mine's electrical distribution system;
- (b) each earthing system at the mine to be of sufficiently low impedance to ensure reliable operation of all electrical protection systems and devices and adequate protection against indirect

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<sup>13</sup> AS 3007.5 'Electrical installations—Surface mines and associated processing plant—Operating requirements', section 3 (Movement of vehicles and machinery in the vicinity of overhead lines)

contact;

- (c) limiting prospective touch voltage, under fault conditions, to within acceptable limits;
- (d) minimising potential impacts from voltage rise caused by lightning strike, static electricity, voltage surges and other transient voltages to within acceptable limits;
- (e) preventing a person inadvertently contacting live parts of equipment or an installation exceeding extra low voltage.

*Example for paragraph (e)—*

The design, installation and maintenance may provide for insulation or an enclosure, shield, interlocking device or automatic disconnection device for the equipment or installation.

### **Isolators for equipment driven by electricity**

**24.(1)** The site senior executive must ensure the mine has a full current isolator in a location that is easily accessible by a person working on equipment driven by electricity at the mine.

**(2)** The electrical engineering manager must ensure—

- (a) the isolator is clearly identified as the isolator for the equipment; and
- (b) the equipment is clearly identified as being supplied with electricity from the isolator.

*Example of how the isolator or equipment may be identified for subsection (2)—*

By marking the isolator or equipment, or placing a notice near the isolator or equipment.

### ***Subdivision 2—Electrical control systems***

#### **Standard for electrical control systems**

**25.** The electrical engineering manager must ensure—

- (a) each electrical control system at the mine operates safely under all operating conditions, including electricity supply instability or

failure; and

- (b) if the system suffers a fault or fails, all emergency stopping systems and safety alarms at the mine remain effective.

### **Control circuits**

**26.(1)** The electrical engineering manager must ensure a control circuit at the mine run externally to an enclosure from which the circuit originates—

- (a) has a voltage of not more than a nominal voltage of 55 V to earth; or
- (b) is protected by earth leakage current protection of not more than 30 mA sensitivity; or
- (c) minimises the risk of direct contact and limits prospective touch voltage to within acceptable limits.

**(2)** Subsection (1) does not apply before 1 January 2011 to a control circuit installed before the commencement of the Act.

**(3)** The electrical engineering manager must ensure a control circuit for an underground mine is explosion protected, unless the whole circuit is installed and operated in a NERZ.

### **Modification of electrical control systems**

**27.** A coal mine's safety and health management system must—

- (a) provide for the security and maintenance of the mine's electrical control system software and control circuits; and
- (b) control modification of the software and circuits; and
- (c) provide for records to be kept of any modifications.

### ***Subdivision 3—Electrical protection***

#### **Electrical protection for power outlets for low voltage electrical equipment**

**28.(1)** The electrical engineering manager must ensure a single-phase



power outlet for low voltage electrical equipment at the mine has—

- (a) earth leakage current protection of not more than 30 mA sensitivity; or
- (b) a device preventing its use by portable electrical equipment.

(2) Subsection (1) does not apply if the power outlet is the only outlet in an isolated electricity supply.

(3) In this section—

**“isolated electricity supply”** means an electricity supply—

- (a) other than the main electricity supply, that is totally insulated from conductive material; or
- (b) that is—
  - (i) supplied with electricity from the main electricity supply; and
  - (ii) totally isolated from the main electricity supply; and
  - (iii) totally insulated from earth.

### **Operating times and tripping current for circuit protection devices**

**29.(1)** The electrical engineering manager must ensure each circuit protection device at the mine has an appropriate operating time and tripping current, having regard to a risk assessment of the operation of the part of the electrical installation it protects.

(2) For a surface mine, the operating time may allow for a delay in cutting off the electricity supply if—

- (a) the device is installed to protect a person operating equipment; and
- (b) it is appropriate to allow the person to bring the equipment to rest before the electricity supply is cut; and
- (c) the person is immediately given a clear warning of the fault.

### **Changing electrical protection settings**

**30.(1)** A person must not change an electrical protection setting for a circuit protection device at a coal mine, unless the person is authorised to make the change by the electrical engineering manager for the mine.

(2) In this section—

**“electrical protection setting”**, for a circuit protection device, means the current, voltage or operating time at which the device is set to trip when it detects an electrical fault in the circuit.

### **Unearthed electrical installations**

**31.(1)** The electrical engineering manager must ensure an unearthed electrical installation at the mine has earth fault detection and control.

(2) Subsection (1) does not apply to a single-phase 240 V generator of less than 25 kW capacity at a surface mine.

### *Subdivision 4—Electrical drawings and plans*

### **Drawings of electrical installations**

**32.(1)** The site senior executive must ensure up-to-date drawings of the mine’s electrical installations are available for use at the mine when electrical equipment and electrical installations are commissioned or modified.

(2) The drawings must be updated as soon as practicable, but not later than 8 days, after—

- (a) the commissioning of any electrical equipment or electrical installation at the mine; or
- (b) any major modification to electrical equipment or an electrical installation at the mine.

(3) The drawings must be kept in a location that is easily accessible by each coal mine worker authorised by an electrical supervisor or the electrical engineering manager to access the drawings.

### **Plan of coal mine’s communication system and main electrical installation**

**33.(1)** The site senior executive must ensure the mine has a plan of its communication system showing the location of each fixed communication device at the mine.

(2) The site senior executive must also ensure the mine has a plan of its main electrical installation showing the following—

- (a) the location of each main electricity reticulation line;
- (b) the location, rating, identifying label and purpose of each main isolator, substation and high voltage switchboard;
- (c) any information required to perform switching programs;
- (d) for a surface mine—the general location of each item of high voltage mobile plant supplied with electricity by a trailing cable.

(3) For an underground mine, the scale of each plan must be 1:5 000.

(4) The plan must be updated as soon as practicable, but not later than 8 days after—

- (a) for a plan of the communication system—the installation or removal of a communication device; or
- (b) for a plan of the main electrical installation—the relocation, removal or installation of a thing mentioned in subsection (2)(a), (b) or (d).

(5) The site senior executive must ensure each plan is kept in a location at the mine that is easily accessible by each coal mine worker authorised by an electrical supervisor or the electrical engineering manager to access the plans.

***Subdivision 5—Records about electrical activities, equipment and installations***

**Records**

**34.(1)** The site senior executive must ensure a record of the following matters about the mine's electrical activities, equipment and installations is kept at the mine—

- (a) for each electrical installation—
  - (i) its electrical protection settings, fault levels, and cable and conductor sizes and switchgear ratings, including circuit interrupting capacity; and

- (ii) its commissioning dates and results; and
- (iii) its monitoring and test dates and results;
- (b) for each electrical equipment item—
  - (i) its commissioning dates and results; and
  - (ii) its monitoring and test dates and results;
- (c) for each electrical safety equipment item used—
  - (i) its description; and
  - (ii) its test dates and results;
- (d) the name of each person appointed—
  - (i) to control and manage the mine’s electrical engineering activities; or
  - (ii) to carry out electrical work and electrical activities;
- (e) the name of each person authorised to enter an electrical operating area;
- (f) the activity each person mentioned in paragraph (e) is authorised to carry out in the operating area.

(2) In this section—

**“electrical operating area”** means an area or enclosure in which electrical equipment or an electrical installation is housed.

**“electrical safety equipment”** includes an instrument for testing electrical equipment, a ladder, a safety harness, an insulating tool and insulating gloves.

## **PART 5—EMERGENCIES**

### **General**

**35.(1)** A coal mine’s safety and health management system must provide for managing emergencies at the mine.

- (2) The system must include provision for the following—
- (a) identifying, by risk assessment, potential emergency situations;
  - (b) minimising risks associated with potential emergency situations;
  - (c) carrying out aided rescue and self-escape of persons from the mine in an emergency;
  - (d) carrying out emergency exercises, including testing the effectiveness of emergency management procedures and the readiness and fitness of equipment for use in an emergency;
  - (e) auditing and reviewing the emergency exercises;
  - (f) if the mine is a surface mine—involving an open-cut examiner for the mine in—
    - (i) developing and testing the emergency management procedures for activities, including mining activities, in and around the surface excavation; and
    - (ii) auditing the documentation for the procedures;
  - (g) if the mine is an underground mine—involving an ERZ controller for the mine in—
    - (i) developing and testing the emergency management procedures for explosion risk zones; and
    - (ii) auditing the documentation for the procedures.

### **Visitors' self-escape**

**36.** The site senior executive must ensure a visitor does not enter an operating area at the mine unless—

- (a) the visitor's fitness level is assessed in an appropriate way, including, for example, by a questionnaire, to decide if the visitor's fitness level is adequate to allow the visitor to self-escape from the area; and
- (b) having regard to conditions prevailing in the area, the visitor's fitness level is adequate for the self-escape; and
- (c) personal protective equipment given to the visitor for the self-escape fits the visitor.

**Fire**

**37.(1)** A coal mine's safety and health management system must provide for the following at the mine—

- (a) fire prevention and control;
- (b) an effective fire fighting capability;
- (c) the safety of persons fighting fires;
- (d) a risk assessment to identify all potential fire hazards at the mine.

**(2)** The system must also provide for the following—

- (a) the availability at the mine, at all times, of equipment that is appropriate and sufficient to extinguish any potential fire identified by the risk assessment;
- (b) the location of portable fire extinguishers on or near equipment and installations identified as potential fire hazards by the risk assessment;
- (c) the compatibility, throughout the mine, of all fire fighting equipment.

**(3)** The coal mine must have a standard operating procedure for action to be taken when a fire is discovered at the mine.

**First aid**

**38.(1)** A coal mine mine's safety and health management system must provide for first aid at the mine.

**(2)** The system must include provision for the following—

- (a) the supply and placement of first aid supplies and equipment, including supplies and equipment required for emergencies, based on a risk assessment;
- (b) appropriate first aid training, including refresher training, emphasising the safety of the person giving first aid as well as the safety of the person receiving first aid;
- (c) the availability of a sufficient number of persons competent in giving first aid.

(3) For accidents involving electricity, the mine must have a standard operating procedure for the following—

- (a) releasing a person from an energised low and high voltage conductor;
- (b) resuscitating a person in an electrical environment;
- (c) managing a person's flash burn injuries.

## **PART 6—FITNESS FOR WORK**

### *Division 1—General*

#### **Consumption of alcohol**

**39.** A person must not consume alcohol at a coal mine, other than in an accommodation building or a recreation area designated by the site senior executive for the purpose.

#### **Carrying out an activity, or entering a place, while under the influence of alcohol**

**40.** A person must not carry out a work activity at a coal mine, or enter a part of the mine where on-site activities are carried on, if the person is under the influence of alcohol.

#### **Safety and health management system for alcohol**

**41.(1)** A coal mine's safety and health management system must provide for controlling risks at the mine associated with the excessive consumption of alcohol.

(2) The system must provide for the following about alcohol consumption for persons at the mine—

- (a) an education program;
- (b) an employee assistance program;

- (c) the following assessments to decide a person's fitness for work—
- (i) voluntary self-testing;
  - (ii) random testing before starting work;
  - (iii) testing the person if someone else reasonably suspects the person is under the influence of alcohol.

(3) In developing the fitness provisions, the site senior executive must comply with section 10,<sup>14</sup> other than section 10(1)(a), as if—

- (a) a reference in the section to a standard operating procedure were a reference to the fitness provisions; and
- (b) a reference in the section to the coal mine workers with whom the site senior executive consulted were a reference to representatives of the mine's coal mine workers.

(4) In this section—

**“fitness provisions”** means the part of the safety and health management system that provides for the things mentioned in subsection (2).

**“reasonably suspects”** means suspects on grounds that are reasonable in the circumstances.

### **Safety and health management system for personal fatigue and other physical and psychological impairment, and drugs**

**42.(1)** A coal mine's safety and health management system must provide for controlling risks at the mine associated with the following—

- (a) personal fatigue;
- (b) other physical or psychological impairment;

*Example of 'other physical or psychological impairment'—*

An impairment caused by stress or illness.

- (c) the improper use of drugs.

(2) The system must provide for the following about personal fatigue for persons at the mine—

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<sup>14</sup> Section 10 (Developing standard operating procedures)



- (a) an education program;
- (b) an employee assistance program;
- (c) the maximum number of hours for a working shift;
- (d) the number and length of rest breaks in a shift;
- (e) the maximum number of hours to be worked in a week or roster cycle.

(3) The system must provide for protocols for other physical and psychological impairment for persons at the mine.

(4) The system must provide for the following about drug consumption or ingestion for persons at the mine—

- (a) an education program;
- (b) an employee assistance program;
- (c) an obligation of a person to notify the site senior executive for the mine of the person's current use of medication that could impair the person's ability to carry out the person's duties at the mine;
- (d) an obligation of the site senior executive to keep a record of a notification given to the site senior executive under paragraph (c).

(5) The site senior executive must consult with a cross-section of workers at the mine in developing the fitness provisions.

(6) In developing the fitness provisions, the site senior executive must comply with section 10, other than section 10(1)(a) and (d)(ii)(C), as if a reference in the section to a standard operating procedure were a reference to the fitness provisions.

(7) If the fitness provisions provide for the assessment of workers for a matter mentioned in subsection (1), the site senior executive must establish the criteria for the assessment in agreement with a majority of workers at the mine.

(8) In this section—

**“fitness provisions”** means the part of the safety and health management system that provides for the things mentioned in subsections (2) to (4).

### **Dealing with records and information about a person's fitness for work**

**43.** The site senior executive must ensure information and records about a person's fitness for work obtained under sections 41 and 42 are—

- (a) used only for deciding the person's fitness for work at the mine; and
- (b) are destroyed—
  - (i) for an employee of a regular contractor—18 months after the employee ceases to work at the mine; or
  - (ii) for an employee of another contractor or coal mine operator—when the employee ceases to be employed by the other contractor or operator.

### *Division 2—Coal mine workers' health scheme*

#### *Subdivision 1—Preliminary*

#### **Application of div 2**

**44.(1)** This division applies to each coal mine worker, other than a coal mine worker employed, or to be employed, to carry out a low risk task at a coal mine.

**(2)** In this section—

**“low risk task”** means a task shown by a risk assessment to create a risk that is so minimal it can be managed effectively without requiring the worker to undergo a health assessment.

#### *Subdivision 2—Nominated medical adviser*

#### **Appointment of nominated medical adviser**

**45.(1)** Each employer must—

- (a) appoint a doctor (the **“nominated medical adviser”**) to carry out,

supervise, and report on, health assessments under this division for the employer's coal mine workers; and

- (b) as soon as practicable after making the appointment, give the chief executive a notice stating the nominated medical adviser's name and contact details.

(2) The employer must include in the contract appointing the nominated medical adviser an obligation on the adviser to discuss, and give advice about, appropriate duties for the worker, under subsection (3).

(3) The discussions must be held with, and the advice given to, the employer and coal mine worker or the worker's representative.

(4) The employer must also include in the contract an obligation on the nominated medical adviser, if asked by a coal mine worker, to discuss the worker's health assessment with another doctor nominated by the worker.

### ***Subdivision 3—Health assessments and health monitoring***

#### **Health assessment**

**46.(1)** The employer must ensure a health assessment is carried out for each person who is to be employed, or is employed, by the employer as a coal mine worker.

(2) The assessment must be carried out—

- (a) in accordance with the instructions, and covering the matters, in the approved form; and
- (b) by, or under the supervision of, the nominated medical adviser.

(3) The assessment may include matters not covered in the approved form if, having regard to a risk assessment carried out for a task for which the person is to be employed, or is employed, the nominated medical adviser considers the person needs to be assessed in relation to the additional matters to achieve an acceptable level of risk.

(4) The assessment must be carried out—

- (a) before the person is employed as a coal mine worker; and
- (b) if the nominated medical adviser decides the assessment is

necessary after being given a notice under section 49(3)—periodically, as decided by the nominated medical adviser; and

- (c) otherwise, periodically, as necessary, but at least once every 5 years.

(5) A medical examination of the person carried out by a doctor other than the nominated medical adviser is taken to be a health assessment carried out by the nominated medical adviser under subsection (2) if—

- (a) the medical examination is carried out under the instructions in the approved form and the nominated medical adviser gives the employer a health assessment report about the examination; or
- (b) the medical examination is for other employment and the nominated medical adviser—
  - (i) is satisfied the examination is equivalent to a health assessment; and
  - (ii) gives the employer a health assessment report about the examination.

### **Employer's responsibility for health assessment**

**47.(1)** The employer must—

- (a) arrange for the health assessment or medical examination mentioned in section 46; and
- (b) ask the nominated medical adviser to give—
  - (i) a health assessment report to the employer; and
  - (ii) a copy and explanation of the report to the person to whom it relates.

(2) The nominated medical adviser must comply with a request under subsection (1)(b).

(3) The employer must pay for the following—

- (a) the health assessment or medical examination;
- (b) a copy of a report about the medical examination.

Maximum penalty for subsection (3)—100 penalty units.

(4) Subsection (3) is not a safety and health obligation for the Act.

(5) Nothing in this division makes the employer responsible for the treatment of any physical or medical condition of the person.

### **Reviewing health assessment report**

**48.(1)** This section applies if the employer is given a health assessment report (the **“original health assessment report”**) about a coal mine worker showing the worker is unable to carry out the worker’s tasks at the mine without creating an unacceptable level of risk.

(2) Before taking action to terminate the worker’s employment or demote the worker, the employer must give—

- (a) the worker a reasonable opportunity to undergo a further health assessment from another nominated medical adviser or relevant medical specialist; and
- (b) the nominated medical adviser or medical specialist details of the worker’s tasks.

(3) Subsection (4) applies if the worker—

- (a) undergoes the further health assessment; and
- (b) gives the employer a report about the assessment (the **“further health assessment report”**), signed by the nominated medical adviser or medical specialist who carried out the assessment.

(4) The employer must—

- (a) give the nominated medical adviser who gave the employer the original health assessment report a copy of the further health assessment report; and
- (b) ask the nominated medical adviser to—
  - (i) review the original health assessment report having regard to the further health assessment report; and
  - (ii) give the employer a report about the review.

(5) In this section—

**“relevant medical specialist”** means a specialist under the *Medical Act 1939* for a branch of medicine that is relevant to the worker’s condition.

### **Monitoring for workers’ exposure to hazards**

**49.(1)** A coal mine’s safety and health management system must provide for periodic monitoring of the level of risk from hazards at the mine that are likely to create an unacceptable level of risk.

**(2)** The system must also provide for notice of any appreciable increase in the level of risk to a coal mine worker at the mine to be given to the worker’s employer.

**(3)** An employer who is given a notice under subsection (2) must give a copy of the notice to the employer’s nominated medical adviser.

**(4)** An employer must ensure that, if a coal mine worker employed by the employer is exposed to a hazard at a coal mine that may increase the level of risk to the worker, the worker’s exposure to the hazard is periodically monitored to assess the level of risk to the worker.

### ***Subdivision 4—Records***

#### **Records about health assessment**

**50.(1)** Subject to subsection (2), a nominated medical adviser must, on behalf of the chief executive, keep the following records—

- (a) for each health assessment carried out by the nominated medical adviser under this division—
  - (i) the data on which the assessment was based; and
  - (ii) a copy of the completed approved form for the assessment;
- (b) for each medical examination taken, under section 46(5), to be a health assessment carried out by the nominated medical adviser—
  - (i) the information forming the basis for the nominated medical adviser’s report about the medical examination under the subsection; and

(ii) a copy of the report.

(2) As soon as practicable after obtaining an original chest x-ray and x-ray report, the nominated medical adviser must give the x-ray and a copy of the report to the chief executive.

(3) As soon as practicable after completing a report about a health assessment or medical examination, the nominated medical adviser must give a legible copy of the report and the data or information on which it was based to the chief executive.

### **Ownership of health assessment records**

**51.** A record kept by the nominated medical adviser under section 50(1) is a record of the department.

### **Confidentiality of medical record**

**52.(1)** A person must not disclose to anyone, other than under this section, the contents of a coal mine worker's medical record obtained by the person under this division.

Maximum penalty—100 penalty units.

(2) A nominated medical adviser may disclose the contents of the record to the coal mine worker or someone with the worker's written consent.

*Example of someone with the worker's written consent—*

The worker's representative at the mine.

(3) The chief executive may disclose the contents of the record—

- (a) to the worker; or
- (b) with the written consent of the worker, to a doctor, hospital or other person; or
- (c) to a person for research purposes, but only if the identity of the worker is protected.

(4) Despite subsection (3)(b), the chief executive may disclose the contents of the record to a doctor or hospital without the worker's consent if—

- (a) the doctor or hospital needs to obtain the contents to treat the

worker; and

(b) the worker is unable to give the consent.

(5) Subsection (1) is not a safety and health obligation for the Act.

(6) In this section—

**“medical record”**, of a coal mine worker, means personal medical results or clinical findings obtained from a health assessment of the worker.

### **Records of monitoring for workers’ exposure to hazards**

**53.(1)** The site senior executive must ensure a record about monitoring carried out under section 49 is kept for 30 years after it is made or the lesser period agreed with the chief executive.

(2) The employer of a coal mine worker for whom monitoring is carried out under section 49(4), or another person agreed between the employer and the chief executive, must keep a record about the monitoring for 30 years after it is made or the lesser period agreed with the chief executive.

## **PART 7—HAZARDOUS SUBSTANCES**

### **Meaning of “hazardous substance”**

**54.** A **“hazardous substance”** is a substance—

- (a) listed as a designated hazardous substance in NOHSC’s document entitled ‘List of Designated Hazardous Substances [NOHSC:10005]’; or
- (b) meeting the criteria stated in NOHSC’s document entitled ‘Approved Criteria for Classifying Hazardous Substances [NOHSC:1008]’.

### **Hazardous substance register**

**55.(1)** The site senior executive must ensure the mine has a register of hazardous substances used at the mine.



(2) The register must—

- (a) contain the material safety data sheet for each hazardous substance; and
- (b) be kept at the mine in a location that is easily accessible by each coal mine worker at the mine.

(3) The material safety data sheet must comply with NOHSC's document entitled 'National Code of Practice for the Preparation of Material Safety Data Sheets [NOHSC:2011]'.

### **Using hazardous substances**

**56.(1)** A coal mine must have a standard operating procedure for using hazardous substances at the mine.

(2) The procedure must include provision for—

- (a) purchasing, selecting, storing, using, moving, decanting and disposing of hazardous substances; and
- (b) appropriate first aid for a person affected by a hazardous substance.

### **Possible major hazard facilities**

**57.(1)** This section applies to a coal mine that meets the criteria for a major hazard facility under NOHSC's document entitled 'National Standard for the Control of Major Hazard Facilities [NOHSC:1014]'.

(2) The mine's safety and health management system must provide for the mine's operations to be carried out in accordance with—

- (a) this regulation; and
- (b) the national standard safety and health provisions—
  - (i) to the extent the provisions are consistent with the Act and this regulation; and
  - (ii) as if a reference in the provisions to the relevant public authority were a reference to the chief inspector of mines.

(3) In this section—

**“national standard safety and health provisions”** means parts 6 to 10 of the document mentioned in subsection (1).

## **PART 8—MINE PLANS AND OTHER INFORMATION ABOUT MINES**

### **Accuracy of plans and information**

**58.(1)** If it is not practicable for a plan of coal mine workings to accurately show the details mentioned in section 67(1)(a) of the Act,<sup>15</sup> the site senior executive must ensure the parts of the plan containing the details for which accuracy is not practicable are clearly marked.

**(2)** The site senior executive must ensure information kept at the mine under section 67(1)(c) and (d) of the Act is sufficiently accurate to achieve an acceptable level of risk in the mine’s coal mining operations.

### **Survey grid system**

**59.** The site senior executive must ensure—

- (a) a datum station, referenced to GDA and AHD, is established near the mine for mine surveys; and
- (b) if a local grid system is used for the surveys, the relationship between the grid system and GDA and AHD is established and shown on the survey plans.

### **Record of drilling activities**

**60.(1)** This section applies to a coal mine where the only activities carried on are principally for, or in connection with, exploring for coal.

**(2)** The site senior executive must ensure a record, complying with this section, of all boreholes for exploration or fluid drainage that are drilled from the surface is made and given to—

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<sup>15</sup> Section 67 (Plans of coal mine workings) of the Act

- (a) the holder for the mine; and
- (b) the chief executive.

(3) The record must include the following information—

- (a) the accurate location of each borehole collar;
- (b) the depth and thickness of each coal seam intersected;
- (c) if a borehole is not vertical—details of its bearing, dip angle and length;
- (d) the location, nature and dimensions of any metallic, radioactive or other potentially harmful material left in any borehole.

(4) Plans and information required to be kept at the mine under section 67 of the Act<sup>16</sup> must include the information contained in the record.

### **Plans of coal mine workings**

**61.(1)** The site senior executive must ensure survey plans of the mine's workings include the following matters that may affect the safety and health of a person in the workings—

- (a) the location of natural and artificial structures;
- (b) surface drill holes.

(2) The site senior executive must also ensure the plans are sufficient to correlate separate sets of workings at the mine, including abandoned workings, to allow the safe management of interfacing between the workings.

### **Plans of highwall mining underground excavation**

**62.** To remove doubt, it is declared that, for section 67(1)(a)(i) of the Act, the extent of mine workings and the current position of any part of mine workings includes the extent and position of each highwall mining underground excavation at the mine.

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<sup>16</sup> Section 67 (Plans of coal mine workings) of the Act

**Mine rescue plan**

**63.(1)** The site senior executive must ensure a mine rescue plan showing the mine's water reticulation and communication arrangements and main access roads is kept at the mine.

**(2)** For an underground mine, the plan must also show the following—

(a) the location of each—

(i) entry to the mine workings; and

(ii) ventilation fan installation;

(b) each access road to the mine surface infrastructure;

(c) each surface installation, administration building and other infrastructure.

**(3)** The scale of the plan must be sufficient to enable it to be overlaid on the plan of the mine workings.

**(4)** In an emergency, the site senior executive must make available to the mine rescue team a sufficient number of copies of the plan at a scale suitable for use by the team in the emergency.

**PART 9—PERSONAL PROTECTIVE EQUIPMENT****Providing personal protective equipment**

**64.** A coal mine operator must—

(a) provide, for the mine's coal mine workers, personal protective equipment that is—

(i) appropriate for the hazards associated with the workers' tasks; and

(ii) sufficient for the number of workers carrying out the tasks; and

(b) ensure the equipment is readily available for use by the workers.

*Example of 'personal protective equipment' for paragraph (a)—*

Safety helmets and boots.

### **Standard operating procedure**

**65.(1)** A coal mine must have a standard operating procedure for using personal protective equipment for a task at the mine.

**(2)** The procedure must include provision for the following—

- (a) training workers in—
  - (i) selecting appropriate personal protective equipment for the task; and
  - (ii) using the equipment;
- (b) instructions on using, maintaining and disposing of the equipment.

## **PART 10—PLANT**

### *Division 1—Fixed and mobile plant*

#### **Braking systems**

**66.(1)** A coal mine's safety and health management system must provide for the continued effectiveness of braking systems on fixed and mobile plant used at the mine.

*Examples of 'braking systems' for subsection (1)—*

1. Hoist brakes on shovels or draglines.
2. Braking systems on winders.

**(2)** The system must include provision for the following—

- (a) the dynamic testing of service brakes;
- (b) appropriate testing of parking brakes, emergency brakes and other braking systems the failure of which may create a risk to a

person;

- (c) keeping a record of the brake test results in a location that is easily accessible by each coal mine worker at the mine.

### **Machine guarding or fencing**

**67.** A coal mine's safety and health management system must provide for minimising the risk to persons from exposed moving or rotating machine components by guarding or fencing the components.

### **Modifying plant**

**68.(1)** A coal mine must have a standard operating procedure for modifying fixed and mobile plant.

**(2)** A coal mine's safety and health management system must provide for the following—

- (a) recording modifications made to the plant at the mine;
- (b) updating drawings of the plant held at the mine to include the modifications;
- (c) assessing and managing risk associated with the modifications.

### **Pre-start warning**

**69.(1)** This section applies if starting fixed or mobile plant at a coal mine is likely to cause a hazard to a person near the plant.

**(2)** The mine's safety and health management system must provide for the plant to be fitted with a device that sounds a warning before the plant is started.

### **Safe access to plant**

**70.** A coal mine's safety and health management system must provide for safe access to, and egress from, fixed and mobile plant used at the mine, including each part of the plant that is routinely accessed.

**Safety checks by competent person**

**71.** A coal mine's safety and health management system must provide for—

- (a) fixed and mobile plant used at the mine to be checked for hazards that might reasonably be expected from operating the plant; and
- (b) the checks to be carried out—
  - (i) by a person competent in recognising the hazards; and
  - (ii) periodically, and, if the plant has been stopped for at least 24 hours, before the plant is started again.

**Miscellaneous**

**72.** A coal mine must have standard operating procedures for the following—

- (a) fitting, removing, testing, maintaining and repairing tyres and rims on fixed and mobile plant;
- (b) recovering fixed and mobile plant after an accident or incident;
- (c) assembling and maintaining fixed and mobile plant in its operational location;
- (d) carrying persons in mobile plant;
- (e) selecting, maintaining and using lifting plant;
- (f) marking lifting plant to show its date of manufacture and capacity;
- (g) ensuring the safety of persons when plant is being towed;
- (h) ensuring the safety of persons involved in servicing, lubricating and refuelling mobile plant;
- (i) ensuring the safety of persons when heavy plant and supplies are being transported at the mine.

## ***Division 2—Mobile plant***

### **Checking mobile plant**

**73.(1)** A coal mine must have a standard operating procedure for checking mobile plant used at the mine.

**(2)** The procedure must include provision for the operator of the plant, as soon as practicable after taking control of it, to check that its brakes, steering, lights and any other safety features are functioning properly.

### **Protective structures**

**74.(1)** This section applies to mobile plant used at a coal mine if the plant is assessed as being at risk of overturning or being struck by a falling object.

**(2)** The site senior executive must ensure the plant is provided with a structure to protect a person using the plant from injury if it overturns or is struck by the object.

### **Seat belts**

**75.(1)** The site senior executive must ensure a risk assessment is carried out on the types of vehicles used at the mine, and the way the types are used at the mine, to decide if seat belts are needed to reduce the risk to persons using the vehicles.

**(2)** If a seat belt is installed in mobile plant, the person occupying the seat must wear the seat belt while the plant is moving.

### **Using mobile plant**

**76.(1)** A coal mine must have a standard operating procedure for using mobile plant.

**(2)** The procedure must include ways of minimising risks from the following—

- (a) light and heavy vehicle interaction;
- (b) overtaking and parking vehicles.



(3) The procedure must have regard to the design and construction of the mine's roads.

### **Warning system if mobile plant operator's visibility is restricted**

77.(1) This section applies if the visibility of a mobile plant operator at a coal mine is restricted while operating the plant.

(2) The site senior executive must ensure the mine has a warning system to ensure the safety of persons near the plant before its initial movement.

## *Division 3—Miscellaneous*

### **Isolating and tagging procedures**

78.(1) A coal mine must have a standard operating procedure for the following—

- (a) controlling the risk of an unplanned release of energy from plant, including positively isolating the energy source;
- (b) if an electrical or mechanical energy source is positively isolated—testing for zero potential;
- (c) taking plant out of service, including the use of danger tags to warn that the plant is out of service;
- (d) returning plant to service.

(2) If the safety or health of a person is directly affected by the operation or non-operation of plant, the procedure must also provide for the person to personally control, by attaching a danger tag or lock to the plant, the plant's change in status from non-operational to operational.

### **Equipment used for maintaining plant**

79.(1) A coal mine must have a standard operating procedure for electrical and mechanical equipment used for inspecting, testing and maintaining the safe operation of plant at the mine.

(2) The procedure must provide for the following—

- (a) selecting equipment that is fit for its intended purpose;
- (b) using the equipment safely;
- (c) maintaining the equipment in accordance with its specification;
- (d) testing the equipment at appropriate intervals and labelling it to show when it was last tested.

### **Fluid above and below atmospheric pressure**

**80.** A coal mine's safety and health management system must provide for managing risk from using fluids above or below atmospheric pressure.

### **Action to be taken if certified equipment does not to meet certification requirements or is likely to create an unacceptable level of risk**

**81.(1)** Subsection (2) applies if a nationally accredited testing station becomes aware that—

- (a) equipment certified by the testing station should not have been certified because it did not meet the requirements for certification; or
- (b) the requirements for certification change in a way that is likely to create an unacceptable level of risk if equipment that has been certified by the testing station is used for the purpose for which it was certified.

**(2)** The testing station must give immediate notice of the fact to—

- (a) the manufacturer or supplier of the equipment who obtained the certification; and
- (b) the chief inspector.

**(3)** If a manufacturer or supplier of certified equipment becomes aware of a matter mentioned in subsection (1) relating to the equipment, the manufacturer or supplier must give immediate notice of the matter to—

- (a) the site senior executive for each mine at which the equipment is, to the manufacturer's or supplier's knowledge, being used; and
- (b) each manufacturer of equipment for the mining industry to whom the manufacturer or supplier has supplied the equipment; and

- (c) each contractor who works in the mining industry and to whom the manufacturer or supplier has supplied the equipment.

(4) If a site senior executive becomes aware that a matter mentioned in subsection (1) relates to certified equipment used at the mine, the site senior executive must immediately—

- (a) take action to ensure the continued use of the equipment does not create an unacceptable level of risk; and
- (b) give the chief inspector notice stating the equipment type and how many items of the equipment are in use at the mine.

## **PART 11—TRAINING**

### **Training scheme**

**82.(1)** A coal mine's safety and health management system must provide for a training scheme for persons at the mine.

(2) The scheme must include provision for the following—

- (a) induction training for coal mine workers and other persons at the mine;
- (b) refresher training for coal mine workers;
- (c) establishing the workers' training needs about the safe performance of the mine's coal mining operations, including, for example, training needs about the mine's standard operating procedures;
- (d) recognising a worker's current competencies and prior learning in establishing the worker's training needs;
- (e) establishing a training program to meet the training needs using the endorsed components of the coal industry training package that are relevant for training and assessing the mine's coal mine workers;
- (f) appointing persons who are competent to give the training and assess the workers' competencies;

- (g) keeping and auditing records of training and assessment given and undertaken;
- (h) designating tasks that may only be carried out by a worker who has been assessed as competent to carry out the tasks;
- (i) training workers elected to be safety and health representatives.

(3) The training scheme must cover the following matters, to the extent the matters are relevant to the duties of the person undergoing the training—

- (a) the mine's safety and health management system;
- (b) operating mobile plant;
- (c) slinging and moving loads and using lifting devices;
- (d) manual handling;
- (e) the purpose of inspections and inspection reports.

(4) In this section—

**“coal industry training package”** means the coal industry training package established by the Australian National Training Authority.

**“endorsed”** means endorsed by the Australian National Training Authority.

### **New coal mine worker not to carry out task until induction training completed**

**83.(1)** A person starting work at a coal mine must not carry out any task at the mine unless the person has completed induction training for the mine.

(2) Subsection (1) does not apply to a task carried out by the person in the course of induction training.

### **Refresher training**

**84.(1)** The site senior executive must ensure each coal mine worker at the mine, including each worker holding a senior management or supervisory position and each worker holding a certificate of competency, is given refresher training under the mine's training scheme at least once every 5 years.

(2) The worker must undergo the training.

**Coal mine worker not to carry out task unless competent**

**85.(1)** This section applies only to a task designated, under a coal mine's training scheme, as a task that may only be carried out by a person who has been assessed as competent to carry it out.

(2) A coal mine worker must not carry out the task at the mine unless the worker has been assessed as competent, and is authorised by the site senior executive or the site senior executive's representative, to carry it out.

(3) Subsection (2) does not apply to a task carried out by the person in the course of training or in an emergency.

**PART 12—WORK AND WORK ENVIRONMENT****Air conditioning units**

**86.** A coal mine's safety and health management system must provide for maintaining and cleaning air conditioning units used at the mine.

**Bathrooms, toilets and dining facilities**

**87.(1)** The site senior executive must ensure the mine has sufficient potable water, bathrooms, toilets, other personal hygiene facilities and dining facilities to cater for the needs of the largest number of workers who may be employed at the mine in a single shift.

(2) The site senior executive must ensure a bathroom in an area where a person may be exposed to a health risk, including, for example, from dirt, dust or wet clothing, contains separate areas for changing from, and into, clean and dirty clothing.

**Cutting, drilling or excavating near a concealed service**

**88.(1)** A coal mine's safety and health management system must provide for controlling risks from cutting or drilling into a building or structure, or excavating ground, at the mine where there may be a concealed service.

(2) The system must include provision for the following to minimise the

uncontrolled release of non-electrical or electrical energy from a concealed service—

- (a) locating the energy source and placing a mark, describing the source, on or near the source;
- (b) isolating the energy source;
- (c) testing the energy source and proving the source de-energised.

(3) The site senior executive must provide sufficient equipment for the matters mentioned in subsection (2)(a) to (c).

## **Dust**

**89.(1)** A coal mine's safety and health management system must provide ways of ensuring—

- (a) each coal mine worker's exposure to respirable dust at the mine is kept to an acceptable level; and
- (b) the worker does not breathe an atmosphere at the mine containing respirable dust exceeding an average concentration, calculated under AS 2985,<sup>17</sup> equivalent to the following for an 8 hour period—
  - (i) for coal dust—3 mg/m<sup>3</sup> air;
  - (ii) for free silica—0.1 mg/m<sup>3</sup> air.

(2) If a person works a shift of more than 8 hours at the mine, the system must provide ways of ensuring the person's dosage of respirable dust is not more than the equivalent dosage for a person working an 8 hour shift.

(3) The system must provide for the supply of personal protective equipment for use by persons in the work environment if the average concentration of respirable dust in the atmosphere can not be reduced to the levels stated in subsection (1).

(4) The system must provide ways of suppressing excessive airborne dust so a person's safety is not threatened, including, for example, by reduced visibility.

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<sup>17</sup> AS 2985 'Workplace atmospheres—Method for sampling and gravimetric determination of respirable dust'

(5) The system must provide for—

- (a) monitoring and recording concentrations of respirable dust and free silica in the atmosphere of the work environment; and
- (b) keeping the record in a location that is easily accessible by each coal mine worker at the mine.

### **Ladders, steps and elevated walkways**

**90.** A coal mine's safety and health management system must provide for ladders, steps and elevated walkways at the mine to be designed and installed to minimise the risk to a person from falling, slipping or tripping.

### **Noise**

**91.(1)** A coal mine's safety and health management system must provide ways of ensuring—

- (a) each coal mine worker's exposure to noise is kept to an acceptable level; and
- (b) the worker is not exposed to noise levels exceeding the levels stated in the national standard for occupational noise.

(2) The system must include provision for the following—

- (a) supplying personal protective equipment for persons in the work environment if there is no practical way of reducing the persons' noise dose to comply with subsection (1);
- (b) monitoring and recording noise levels in the work environment;
- (c) keeping the records in a location that is easily accessible by each coal mine worker at the mine;
- (d) identifying, by an appropriate warning sign, each part of the mine where there are excessive noise levels.

(3) In this section—

**“national standard for occupational noise”** means the national standard for occupational noise stated in NOHSC's document entitled 'National Standard for Occupational Noise [NOHSC:1007]'.

**Working at heights**

**92.(1)** A coal mine's safety and health management system must provide for controlling risk associated with working at heights at the mine.

(2) If a person is required to work at a height greater than 2.4 m, the system must provide for minimising the person's risk of injury from falling.

(3) The system must include standard operating procedures for using personal protective equipment to control the risk.

(4) The system may include provision for using the following plant to control the risk—

- (a) lift boxes and work platforms;
- (b) scaffolding, barricades, hand rails and restraining or fall arresting devices.

(5) If the system provides for using plant mentioned in subsection (4), the system must require the plant to be supplied for coal mine workers at the mine.

(6) If the system provides for the use of lift boxes or work platforms, the system must state the circumstances in which the boxes or platforms may be suspended by a crane.

**Working near a body of water or other liquid**

**93.(1)** A coal mine's safety and health management system must provide for controlling risk associated with working near a body of water or other liquid at the mine.

(2) The system must include provision for the use of a buoyancy aid by a person carrying out the work if a risk assessment identifies a risk of the person drowning.

**Checking and examining work areas**

**94.(1)** A coal mine must have a standard operating procedure for—

- (a) checking the condition of a work area before coal mine workers proceed to it; and



- (b) examining the area, before workers start work in it, to check for hazards.

(2) The procedure must provide for the check and examination to be carried out by each coal mine worker who works in the area.

### **Maintaining hygienic work environment**

**95.** A coal mine must have a standard operating procedure for maintaining the facilities mentioned in section 87(1)<sup>18</sup> and other areas of the work environment in a hygienic condition.

### **Miscellaneous**

**96.** A coal mine must have a standard operating procedure for the following—

- (a) controlling access to, and working in, confined spaces at the mine;
- (b) minimising the risk to persons from carrying out manual handling tasks;
- (c) protecting persons from the following at the mine—
  - (i) abrasive blasting and high pressure, chemical and mechanical cleaning;
  - (ii) cutting and welding, including using cutting and welding equipment in a confined, wet or dusty location;
  - (iii) laser emissions and other sources of harmful electromagnetic radiation, including solar radiation.

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<sup>18</sup> Section 87 (Bathrooms, toilets and dining facilities)

## **PART 13—MISCELLANEOUS**

### **Monitoring and recording deformation of natural and artificial structures**

**97.** If the deformation of natural and artificial structures at the mine caused by coal mining operations may affect the safety or health of a person, the site senior executive must ensure the deformation is monitored and recorded.

### **Reporting and rectifying defects**

**98.** A coal mine's safety and health management system must provide for—

- (a) reporting all defects in the mine's plant, structures and procedures; and
- (b) rectifying defects that create an unacceptable level of risk.

### **Restricting access to parts of mine**

**99.** A coal mine's safety and health management system must provide for restricting access by persons to parts of the mine, including, for example, the following—

- (a) sumps and drains identified and assessed by a risk assessment as parts to which access by persons needs to be restricted to achieve an acceptable level of risk;
- (b) unstable, hazardous or broken ground.

### **Securing boreholes**

**100.(1)** This section applies to a borehole on a mining tenure only if the borehole—

- (a) is not required to remain open for operational or investigative purposes; and
- (b) is likely to affect underground mine workings.

(2) The site senior executive must ensure the borehole is permanently sealed at, and above, each coal seam level to prevent, as far as practicable—

- (a) water entering the coal seam from the surface or aquifers; or
- (b) gas entering the coal seam from other coal seams.

## CHAPTER 3—SURFACE MINES

### PART 1—PRELIMINARY

#### Application of ch 3

**101.** This chapter applies only to surface mines.<sup>19</sup>

#### Ways of achieving an acceptable level of risk

**102.(1)** This chapter, other than sections 109 and 153,<sup>20</sup> prescribes ways of achieving an acceptable level of risk at a surface mine in the circumstances mentioned in the chapter.

(2) However, this chapter does not deal with all circumstances that expose someone to risk at a surface mine.

(3) A person may discharge the person's safety and health obligation in the circumstances mentioned in this chapter only by following the prescribed ways.<sup>21</sup>

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<sup>19</sup> See also chapter 2 (All coal mines).

<sup>20</sup> Sections 109 (Giving technical directions to open-cut examiner) and 153 (Giving technical directions to a person appointed under s 60(8) or (9) of the Act)

<sup>21</sup> See section 34 (Discharge of obligations) of the Act for the penalty for failing to discharge the obligation.

## **PART 2—OPEN-CUT EXAMINER**

### **Application of pt 2**

**103.** This part does not apply to a surface mine that is the surface operations of an underground mine.

### **Presence of, and access to, open-cut examiner**

**104.** The site senior executive must ensure, when mining activities are carried out in or around the surface excavation—

- (a) at least 1 open-cut examiner is present at the mine; and
- (b) the open-cut examiner is contactable by a person working in or around the excavation.

### **Open-cut examiner's responsibilities and duties—general**

**105.(1)** The site senior executive must ensure—

- (a) the main responsibility of an open-cut examiner for the mine is the safety and health of persons in or around the surface excavation during mining activities in or around the surface excavation; and
- (b) the open-cut examiner's main duties relate to the main responsibility.

**(2)** Subsection (1)(b) does not prevent the open-cut examiner having other duties at the mine, including, for example, duties given to the examiner under the mine's safety and health management system.

### **Inspecting surface excavations**

**106.(1)** An open-cut examiner must inspect a surface mine excavation and the part of the mine near the excavation where activities, including mining activities, are to be, or are being carried out, to decide whether the level of risk is acceptable.

**(2)** The inspection must be done—

- (a) before the activities start in or around the excavation; and
  - (b) periodically, as required under the mine's safety and health management system.
- (3) Before carrying out the inspection, the examiner must—
- (a) read the latest open-cut examiner's report in the mine record; and
  - (b) acknowledge, in writing, in the mine record, that the examiner has read the report.

### **Reducing unacceptable level of risk**

**107.(1)** This section applies if, after inspecting a surface mine under section 106, the open-cut examiner decides an unsafe thing at the mine causes an unacceptable level of risk.

(2) If it is practicable, the examiner must ensure the thing is made safe immediately.

(3) If it is not made safe immediately, the examiner must immediately notify persons at the mine who may be exposed to the risk.

(4) Until it is made safe, the examiner must—

- (a) erect a barrier to prevent persons from unknowingly entering the part of the mine where the unacceptable level of risk exists; and
- (b) stop coal mining operations in, and withdraw all persons from, the part.

(5) If the thing is not made safe by the end of the shift in which the inspection was made, the examiner, at the end of the shift, must report the matter to the following persons—

- (a) the examiner's immediate supervisor at the mine;
- (b) an open-cut examiner who is required to make a similar inspection during the next shift.

### **Role in developing and reviewing safety and health management system**

**108.(1)** The site senior executive must ensure at least 1 open-cut examiner is involved in developing, reviewing and auditing the part of the

mine's safety and health management system relating to the mining activities in and around the mine excavation.

(2) Subsection (1) does not require the examiner to be involved in a matter that is not within the examiner's competency.

### **Giving technical directions to open-cut examiner**

**109.** A person must not give a technical direction about a safety and health matter to an open-cut examiner unless the person has competencies for the matter at least equivalent to those of the open-cut examiner.

Maximum penalty—200 penalty units.

## **PART 3—ELECTRICAL ACTIVITIES, EQUIPMENT AND INSTALLATIONS**

### *Division 1—Preliminary*

#### **Application of pt 3**

**110.** This part applies only to electrical equipment and electrical installations above extra low voltage.

### *Division 2—Electrical activities*

#### **Appointment of person to control and manage electrical engineering activities**

**111.** If electricity is proposed to be used in coal mining operations at a surface mine, the site senior executive must appoint a person to control and manage the mine's electrical engineering activities.

**Live testing electrical equipment**

**112.(1)** A surface mine must have a standard operating procedure for live testing electrical equipment at the mine.

**(2)** The procedure must—

(a) state—

- (i) what equipment may be live tested; and
- (ii) what instruments may be used for the testing; and

(b) provide for the following—

- (i) isolating areas where equipment is being live tested or test run;
- (ii) using personal protective equipment;
- (iii) using high voltage test equipment and discharging stored energy after the test;
- (iv) dealing with high prospective fault currents;
- (v) other precautions to be taken for live testing.

***Division 3—Electrical equipment and installations*****Electrical protection for electrical distribution system**

**113.(1)** The site senior executive must ensure an earthed electrical distribution system at the mine has earth leakage protection.

**(2)** Subsection (1) does not apply if—

- (a) persons at the mine are protected against indirect contact with the system; or
- (b) for an overhead power line—
  - (i) mobile plant is not operated close to the line; and
  - (ii) a risk assessment shows earth leakage protection would only minimally reduce the risk.

**Electrical protection for mobile or transportable equipment**

**114.(1)** This section applies to mobile or transportable equipment used at a surface mine and supplied with electricity by a reeling or trailing cable.

(2) If the equipment does not have a local earthing system, the site senior executive must ensure the cable has an earth continuity monitoring system that cuts off the electricity supply immediately after an earth continuity fault is detected in the cable or equipment.

(3) Subsection (2) does not apply if the cable—

- (a) is a low voltage cable; and
- (b) has earth leakage current protection of not more than 30 mA sensitivity; and
- (c) has individually screened cores; and
- (d) has no joining plugs or sockets.

(4) The site senior executive must ensure the electricity source for the equipment has an earth fault current limitation device that limits prospective touch voltage to within acceptable limits.

(5) Subsection (4) does not apply if the equipment is low voltage equipment and persons at the mine are otherwise protected adequately against injury from indirect contact with electricity.

**PART 4—EXPLOSIVES****Using explosives**

**115.** Explosives for use, or used, at a surface mine must be stored, used and disposed of under AS 2187 ‘Explosives—Storage, transport and use’.

**Safety and health management system**

**116.(1)** A surface mine must have a standard operating procedure for the following—

- (a) transporting explosives at the mine;



- (b) inspecting and reporting on the safety of equipment used at the mine for manufacturing, storing, transporting and delivering explosives;
- (c) taking appropriate action to make equipment mentioned in paragraph (b) safe;
- (d) accounting for explosives brought onto the mine;
- (e) checking for, and isolating, explosives that have deteriorated;
- (f) minimising the risk of theft or misuse of explosives;
- (g) identifying and controlling hazards—
  - (i) during the charging and firing of explosives; and
  - (ii) in particular places, including, for example in a storage bin feeder in which an explosive is to be used to clear a blockage;
- (h) finding, recovering and detonating misfired explosives;
- (i) keeping a record about misfired explosives.

(2) The procedure for transporting explosives must address the following matters—

- (a) packaging explosives for transport;
- (b) the design of vehicles and compartments in which explosives are to be transported;
- (c) marking packages, containers and vehicles used for transporting explosives;
- (d) stowing and segregating explosives during transport;
- (e) the appropriate load limit for vehicles carrying explosives;
- (f) transport procedures necessary to reduce the probability and consequence of incidents;
- (g) the competence required of persons for transporting explosives, including handling the explosives and mixing and discharging the explosives from vehicles;
- (h) temporary storage;
- (i) restricted areas;

(j) emergency response.

(3) The procedure for identifying and controlling hazards during the charging and firing of explosives must—

(a) have regard to the following—

(i) the proximity of unrelated activities to the charging and firing;

(ii) ground conditions; and

(b) state the allowable period for the explosives to remain in the ground before being detonated.

## **PART 5—HAZARDOUS AREAS**

### **Spoil dumps and excavated faces**

**117.(1)** A surface mine must have a standard operating procedure for working on spoil dumps and near excavated faces at the mine.

(2) The procedure must include provision for inspecting and monitoring the spoil dumps and excavated faces.

### **Restricting access to hazardous areas**

**118.** A surface mine's safety and health management system must provide for the following—

(a) erecting and maintaining barriers at highwalls and advancing faces;

(b) controlling the entry of persons to areas containing open drill holes.

## PART 6—HIGHWALL MINING

### *Division 1—General*

#### **Entry to highwall mining underground excavation**

**119.** A person must not enter a highwall mining underground excavation unless—

- (a) an abnormal circumstances declaration is in force for the excavation; and
- (b) a person having the competencies to supervise ERZ operations in an underground mine has been appointed to control the highwall mining activity while the abnormal circumstances declaration is in force; and
- (c) a risk assessment of the abnormal circumstances has been done, identifying the hazards associated with the abnormal circumstances; and
- (d) adequate controls are in place to ensure the safety of the person entering the excavation; and
- (e) the person—
  - (i) has the necessary competencies to work safely in an underground mine; and
  - (ii) carries a certified self-contained self-rescuer.

### *Division 2—Abnormal circumstances declaration*

#### **Abnormal circumstances declaration**

**120.(1)** This section applies if it becomes necessary for a person to enter a highwall mining excavation at a surface mine to rescue someone or recover plant.

**(2)** An abnormal circumstances declaration must be made by—

- (a) the site senior executive; or

- (b) if it necessary because of urgent or other special circumstances, including, for example the unavailability of the site senior executive—the senior supervisor for the mine.
- (3) The declaration must be written and state the following—
  - (a) the controls that must be observed to manage the risks identified by a risk assessment of the risk to a person entering the highwall mining excavation;
  - (b) the period for which the declaration is in force.

### **Notifying particular persons of abnormal circumstances declaration**

**121.** Immediately after making the abnormal circumstances declaration, the site senior executive or senior supervisor must give notice of it to—

- (a) each supervisor in control of the highwall mining operation; and
- (b) a site safety and health representative for the mine.

### **Revoking abnormal circumstances declaration**

**122.(1)** Immediately the need for a person to enter the highwall mining excavation has passed, the abnormal circumstances declaration must be revoked by the site senior executive or senior supervisor who made the declaration.

- (2) The revocation must be written and notice of it given to—
  - (a) each supervisor in control of the highwall mining operation; and
  - (b) a site safety and health representative for the mine.

### **Particulars of abnormal circumstances declaration must be included in mine record**

**123.(1)** An abnormal circumstances declaration is prescribed for section 68 of the Act<sup>22</sup> as a matter that must be included in the mine record.

- (2) The site senior executive must ensure the mine record includes the

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<sup>22</sup> Section 68 (Mine record) of the Act

following particulars about the declaration—

- (a) the reasons for the declaration;
- (b) the date it was made;
- (c) the controls required by the declaration;
- (d) the date it was revoked.

### **Other provisions applying while declaration is in force**

**124.(1)** Without limiting any other provision of chapter 2 or this chapter, the provisions of chapter 4 stated in schedule 3<sup>23</sup> apply to the highwall mining underground excavation to which the abnormal circumstances declaration relates while the declaration is in force.

**(2)** For subsection (1), a reference in the provisions to—

- (a) the underground mine manager or ventilation officer is taken to be a reference to the site senior executive; and
- (b) the ERZ controller is taken to be a reference to a person mentioned in section 119(b); and
- (c) an underground mine is taken to be the surface mine at which the highwall mining is carried out.

### ***Division 3—Safety and health management system***

#### **Safety and health management system for highwall mining**

**125.(1)** If highwall mining is carried out at a surface mine, the mine's safety and health management system must provide for conducting the highwall mining activity in a way that controls the risk of unplanned highwall instability.

**(2)** The system must include standard operating procedures for the following—

- (a) the entry of persons to, and the evacuation of persons from, an

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<sup>23</sup> Schedule 3 (Chapter 4 provisions applying while abnormal circumstances declaration is in force)

- area where highwall mining is carried out;
  - (b) fire prevention, and fire fighting, associated with highwall mining;
  - (c) identifying and marking areas near highwall mining where—
    - (i) explosive atmospheres may occur; or
    - (ii) it is safe to use cutting and welding equipment, or smoke cigarettes;
  - (d) continuously monitoring oxygen and methane in the atmosphere at the cutting face in the highwall mining excavation during cutting if an explosive atmosphere that may cause a risk is present, or suspected to be present, in the excavation;
  - (e) working safely in areas where there is a potential for flooding from any source;
  - (f) enabling a person to communicate with a person on the surface when work is being carried out in the underground excavation.
- (3) The procedure mentioned in subsection (2)(c) must provide for—
- (a) monitoring the areas for the potential for the formation of an ERZ; and
  - (b) deciding whether—
    - (i) equipment used in the areas needs explosion protection; and
    - (ii) aluminium alloys used in the areas need protection to minimise the risk of explosion.
- (4) The procedure mentioned in subsection (2)(e) must provide for ongoing risk assessment of the potential for inrush, outrush and flooding.

## **PART 7—MINE PLANS**

### **Plan of surface land**

**126.(1)** The site senior executive must ensure the mine has a plan, complying with this section, of its surface land.

(2) The scale of a hard copy of the plan must be 1:2 500.

(3) The plan's reference grid must use GDA as its basis or a grid that can be cross-referenced to GDA by information stated on the plan.

(4) The information about the mine shown on the plan must include the following—

- (a) the mine's boundaries;
- (b) the boundaries of the following—
  - (i) any road, railway, power line or other type of reserve or easement on the surface within the mine's boundaries;
  - (ii) any creek, river, watercourse, lake, sea, dam or other possible inrush source on the surface within the mine's boundaries or on land adjacent to the mine;
- (c) the location of any artificial structures on the surface within the mine's boundaries;
- (d) the contours of the reduced levels of the mine workings floor at intervals, of not more than 5 m, as are necessary to show potential hazards at the mine.

(5) The site senior executive must ensure at least 1 copy of the plan kept at the mine is drawn on a transparency so the plan can be overlaid on the plan of any underground mine workings.

### **Plans of surface services**

**127.(1)** The site senior executive must ensure current plans identifying and showing the location of surface services, including buried services, are kept in a location at the mine that is easily accessible by each coal mine worker at the mine.

(2) In this section—

**“buried service”** includes electricity conducted through an underground electrical cable and another service carried in an underground pipe.

**“surface service”** includes the following—

- (a) a communication cable;
- (b) compressed air storage and reticulation;

- (c) diesel storage and reticulation;
- (d) an electrical cable;
- (e) an emergency access or road;
- (f) a fire-fighting facility;
- (g) a first aid facility;
- (h) gas storage and reticulation;
- (i) rescue equipment;
- (j) a sewerage facility;
- (k) a water storage pipeline or drain.

## **PART 8—MINE ROADS**

### **Specification for design and construction of mine roads**

**128.(1)** A surface mine's safety and health management system must provide a specification for the design and construction of mine roads to enable the safe movement of vehicles about the mine.

**(2)** The specification must have regard to the particular conditions at the mine, including the following—

- (a) the characteristics of the mine vehicles;
- (b) the types of materials used for road construction;
- (c) the methods of working the mine.

**(3)** The specification must be developed through a formal risk assessment process and must provide for the following for the roads—

- (a) barriers;
- (b) curvature;
- (c) grade;
- (d) guideposts;



- (e) pavement shape;
- (f) safety berms;
- (g) signs;
- (h) surface material;
- (i) width.

(4) The specification must provide for a safety berm along the edge of a road where the vertical drop is more than 0.5 m.

(5) For a primary haul road regularly used for 2-way traffic, the specification must provide for a road width at least 3.5 times the width of the largest vehicle regularly using the road.

(6) In this section—

**“primary haul road”** means a road—

- (a) intended to be used, during the life of the mine, by heavy vehicles to move overburden, coal and reject material from the mine; and
- (b) capable of carrying mixed traffic at high speed.

**“width”**, for a road, means the width of its useable running pavement clear of guideposts, grader rills and safety berms.

### **Standard operating procedure**

**129.** A surface mine must have a standard operating procedure for maintaining and watering mine roads, including dealing with hazards caused by excessive watering of roads.

## **PART 9—PLANT**

### *Division 1—Operator attended dredges*

#### **Safety features for operator attended dredges**

**130.** A surface mine’s safety and health management system must

provide for the following safety features for an operator attended dredge at the mine—

- (a) an alarm system to warn the operator when the minimum freeboard for the dredge is breached;
- (b) a water tight door or cover on each hatch or opening on a hull that is essential for floating the dredge;
- (c) barriers and handrails fitted to or around the dredge to minimise the risk of a person falling overboard.

### **Stability checks**

**131.** A surface mine's safety and health management system must provide that before an operator attended dredge is used at the mine—

- (a) stability checks are done for the dredge to calculate—
  - (i) the dredge's safe working limits, including its minimum freeboard; and
  - (ii) the safe allowable water levels for the dredge's hulls; and
- (b) a method of measuring water levels in the dredge's flotation hulls is available.

### **Using and relocating operator attended dredges**

**132.(1)** A surface mine must have a standard operating procedure for using and relocating operator attended dredges at the mine.

**(2)** The procedure must provide for the following—

- (a) safe access to a floating pontoon;
- (b) restricting access to areas identified in a risk assessment as high risk areas;
- (c) controlling electrical trailing cables connected to the dredge;
- (d) the safety of persons near winch ropes;
- (e) using a bilge pump, including, in particular, ways to minimise the risk of reverse siphoning;
- (f) checking and recording the dredge's freeboard;

- (g) maintaining and inspecting the dredge's hulls and parts essential for flotation;
- (h) controlling risk from dredging the face;
- (i) monitoring climatic conditions and securing the dredge during adverse climatic conditions.

### *Division 2—Miscellaneous*

#### **Discharging loads**

**133.(1)** A surface mine must have a standard operating procedure for discharging loads from fixed and mobile plant.

**(2)** The procedure must include provision for the following for dump trucks—

- (a) the design, construction and maintenance of safety berms on roads used by the trucks;
- (b) identifying risks of the trucks overturning;
- (c) safe dump areas and routes;
- (d) methods of working with the trucks.

#### **Using explosive powered tools**

**134.** The site senior executive must ensure the mine has a standard operating procedure for using explosive powered tools.

#### **Using plant near electricity**

**135.(1)** A surface mine must have a standard operating procedure for using fixed and mobile plant near electrical cables, overhead electrical conductors, or electrical equipment.

**(2)** The procedure must include provision for the following—

- (a) recording power line heights at each location where a vehicle may pass;
- (b) keeping a register of the height of vehicles and mobile plant used

on site;

- (c) fixing standard travelling routes at the mine;
- (d) travelling other than on a standard travelling route;
- (e) inspecting, and reporting on, travelling routes for plant not included in the register mentioned in paragraph (b);
- (f) preventing incidents involving electrical contact, including, for example by—
  - (i) using barriers, signs, indicators and alarms; and
  - (ii) requiring stated clearance distances between plant and electrical conductors; and
  - (iii) isolating electrical conductors.

## **PART 10—STOCKPILE AND COAL WASTE DUMP OPERATIONS**

### **Engine shutdown and fire suppression**

**136.** A surface mine's safety and health management system must provide for—

- (a) each manually operated earthmoving machine used on a stockpile or coal waste dump at the mine to be fitted with an automatic fire suppression system; and
- (b) the machine's engine to be capable of being stopped, independently of the operator, if the machine becomes buried.

### **Fire detection and suppression in tunnels**

**137.** A surface mine's safety and health management system must provide for automatically detecting combustion and suppressing fires in tunnels beneath stockpiles.

**Standard operating procedures**

**138.(1)** A surface mine must have standard operating procedures for the following—

- (a) operating equipment on stockpiles and coal waste dumps;
- (b) ensuring the safety of persons—
  - (i) on or near a stockpile or coal waste dump; and
  - (ii) in, or near, heated areas or areas with a potential for spontaneous combustion;
  - (iii) working below or near a stockpile or coal waste dump where there is potential for material inrush or outrush;
  - (iv) entering a bin or hopper to free blockages from inside or outside it;
- (c) maintaining a safe atmosphere in a tunnel under a stockpile while persons are working in the tunnel;
- (d) evacuating persons from a tunnel under a stockpile.

**(2)** The procedure for operating equipment on a stockpile must provide for the following—

- (a) detecting, and giving notification of, voids in a stockpile;
- (b) taking emergency action if equipment falls into a void;
- (c) traversing a stockpile;
- (d) creating loading faces and dozer slots and battering down the faces and slots;
- (e) supplying uniform lighting to minimise shadows.

**Safety berms**

**139.** If rear dump trucks are required to dump up to, or over, an edge at a surface mine, the mine's safety and health management system must provide for constructing and maintaining a safety berm to reduce the risk from the trucks toppling over the edge.

## **PART 11—MISCELLANEOUS**

### **Prohibited articles**

**140.(1)** A surface mine's safety and health management system must provide for classifying materials or objects as prohibited articles.

(2) A person must not have a prohibited article at the mine.

### **Safety inspections**

**141.(1)** A surface mine must have a standard operating procedure for carrying out safety inspections of workplaces, including an inspection by an open-cut examiner under section 106,<sup>24</sup> at the mine.

(2) The procedure must require—

- (a) a safety inspection to be done before an on-site activity is carried out at a workplace, and periodically while activities are carried out at the workplace; and
- (b) the results of the inspection, including details of hazards and recommended corrective action, to be made available to the mine's coal mine workers.

### **Flammable or toxic gas**

**142.(1)** A surface mine's safety and health management system must provide for protecting persons from risks from flammable or toxic gas at the mine.

(2) The system must include a standard operating procedure that provides for the following—

- (a) identifying and monitoring parts of the mine where the gas might accumulate and create a hazard;
- (b) fixing flammable gas concentration limits for the work environment;
- (c) testing for flammable or toxic gas in the work environment,

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<sup>24</sup> Section 106 (Inspecting surface excavations)

- before, during and after carrying out work;
- (d) recording information about flammable or toxic gas detected in the work environment;
  - (e) controlling flammable or toxic gas in the work environment;
  - (f) establishing emergency procedures for flammable or toxic gas in the work environment.

### **Heat stress**

**143.** A surface mine's safety and health management system must include a procedure for protecting persons from heat that may lead to heat stress, heat exhaustion or heat stroke.

### **Lighting**

**144.** A surface mine's safety and health management system must provide for the following—

- (a) adequate lighting, having regard to shadow, contrast and glare, in each area of the mine in which work is to be carried out so the work can be carried out safely;
- (b) emergency lighting to ensure that persons in a building or enclosure at the mine can safely exit if the normal lighting fails.

### **Spray painting and spraying other substances**

**145.** A surface mine must have a standard operating procedure for spray painting or spraying a volatile or harmful substance.

### **Trenches**

**146.(1)** A surface mine's safety and health management system must provide for protecting persons from risks from trenches at the mine.

- (2)** The system must include provision for the following—
- (a) the use of barricades;

- (b) ground support;
- (c) water ingress and hazardous atmosphere in the trench.

## **CHAPTER 4—UNDERGROUND MINES**

### **PART 1—PRELIMINARY**

#### **Application of ch 4**

**147.** This chapter applies only to underground mines.<sup>25</sup>

#### **Ways of achieving an acceptable level of risk**

**148.(1)** This chapter prescribes ways of achieving an acceptable level of risk at an underground mine in the circumstances mentioned in the chapter.

**(2)** However, this chapter does not deal with all circumstances that expose someone to risk at an underground mine.

**(3)** A person may discharge the person's safety and health obligation in the circumstances mentioned in this chapter only by following the prescribed ways.<sup>26</sup>

### **PART 2—GENERAL**

#### **Principal hazard management plan**

**149.** An underground mine must have principal hazard management plans that provide for at the least the following—

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<sup>25</sup> See also chapter 2 (All coal mines).

<sup>26</sup> See section 34 (Discharge of obligations) of the Act for the penalty for failing to discharge the obligation.



- (a) emergency response;
- (b) gas management;
- (c) methane drainage;
- (d) mine ventilation;
- (e) spontaneous combustion;
- (f) strata control.

### **Restriction on entering below ground**

**150.** A person must not enter below ground at an underground mine without the authority of the underground mine manager.

### **Dealing with flammable substances underground**

**151.** An underground mine must have a standard operating procedure for using, storing, handling and disposing of flammable substances with a flash point of less than 61° C underground.

### **Limit to external surface temperature of equipment used underground**

**152.** Unless otherwise allowed under part 8, division 5,<sup>27</sup> a person must not use equipment underground if its external surface temperature is more than 150° C.

### **Giving technical directions to a person appointed under s 60(8) or (9) of the Act**

**153.** A person must not give a technical direction about a safety and health matter to a person appointed under section 60(8) or (9) of the Act unless the person has the necessary technical competency, and is authorised by the underground mine manager, to give the direction.

Maximum penalty—200 penalty units.

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<sup>27</sup> Part 8, division 5 (Hot work)

## **PART 3—EMERGENCIES**

### *Division 1—Fire prevention and control*

#### **Fire prevention and control**

**154.** The site senior executive must ensure a building or structure located at a surface intake opening, or in the underground mine, is constructed of a nonflammable material.

#### **Fire officers**

**155.(1)** The underground mine manager must appoint, in writing, at least 1 person as a fire officer for the mine.

**(2)** The fire officer is responsible for the following—

- (a) inspecting, testing and maintaining all fire fighting equipment;
- (b) keeping records of the inspection, testing and maintenance of fire fighting equipment;
- (c) establishing fire prevention and control training needs and ensuring the training is carried out;
- (d) ensuring the currency of all fire fighting plans and procedures;
- (e) testing, and reporting on, the condition of the mine's communication system.

### *Division 2—Entry air locks and emergency mine sealing*

#### **Entry air locks and emergency mine sealing**

**156.(1)** The site senior executive must ensure each entrance from the surface to the underground mine is capable of being sealed—

- (a) at the surface without requiring persons to travel in front of the entrance to seal it; or
- (b) if the entrance is a vertical shaft—

- (i) in the way mentioned in paragraph (a); or
- (ii) in a roadway at the bottom of the shaft.

(2) The site senior executive must also ensure—

- (a) at least 1 of the entrances has a mine entry airlock capable of withstanding an overpressure of 70 kPa while the airlock is open; and
- (b) at least 1 of the entrances, when sealed, is capable of allowing the following—
  - (i) the use of inertisation equipment from a safe position;
  - (ii) monitoring the atmosphere behind the seal from a safe position;
  - (iii) persons to re-enter the mine through the entrance.

(3) Subsection (2)(b)(i) and (ii) do not apply if an airlock is installed at the entrance mentioned in the subsection and designed to allow the following—

- (a) persons and large mobile plant to pass into the mine;
- (b) the use of inertisation equipment from a safe position;
- (c) monitoring the atmosphere behind the air lock from a safe position.

### **Testing airlocks and seals**

**157.(1)** The site senior executive must ensure the operation of each airlock installed for an entrance at the mine is tested, other than pressure tested, at least once a year.

(2) The site senior executive must also ensure—

- (a) each airlock and seal at the mine that is required to be used with inertisation equipment in an emergency is tested at appropriate intervals to ensure it is capable of being used with the equipment; and
- (b) the necessary facilities, including, for example, water and cleared areas, are available for use with the equipment.

## PART 4—RESCUE AND COMMUNICATION

### *Division 1—Self-rescuers and other breathing apparatus*

#### **Self-rescuers and other breathing apparatus**

**158.(1)** An underground mine's safety and health management system must provide for the following for persons other than mines rescue persons—

- (a) supplying self-rescuers, and other breathing apparatus, of a certified type for use at the mine;
- (b) maintaining and testing self-rescuers and other breathing apparatus used at the mine;
- (c) for self-rescuers—
  - (i) issuing each person with a self-rescuer that is physically suitable for the person before the person enters the mine; and
  - (ii) training persons in donning, changing over and using self-rescuers, including self-rescuers stored in caches in the mine, before the persons enter the mine; and
- (d) for other breathing apparatus—
  - (i) issuing the breathing apparatus to each person who is required to use the apparatus; and
  - (ii) training persons who are required to use the breathing apparatus in using the apparatus.

**(2)** The system must also provide for the following—

- (a) the use of a self-rescuer at the mine by the following—
  - (i) a person who is using the self-rescuer other than the self-rescuer that was issued permanently to the person;
  - (ii) a temporary coal mine worker;
  - (ii) a visitor;
- (b) recording the following details about each temporary use of a self-rescuer at the mine—

- (i) the name of the person using it;
  - (ii) the date and time the self-rescuer was taken or issued for use by the person;
  - (iii) the unique identification of the self-rescuer;
- (c) removing a record mentioned in paragraph (b) when the person to whom the record applies returns the self-rescuer.

### **Restriction on entering below ground at underground mine without self-rescuer**

**159.(1)** A person must not enter below ground at an underground mine unless the person—

- (a) has been issued with, and is carrying, a self-rescuer; and
- (b) is trained in donning, changing over and using the self-rescuer and self-rescuers stored in caches in the mine; and
- (c) has examined the self-rescuer, is satisfied it has not been damaged externally, and has carried out any checks required by the manufacturer; and
- (d) is physically capable of using a self-rescuer of a certified type.

**(2)** Subsection (1) does not apply to a mines rescue person carrying out a mines rescue activity.

### **Responsibility of persons issued with self-rescuers**

**160.** While a self-rescuer is in the possession or control of the person to whom it has been issued, the person must ensure its safe keeping and, as far as practicable, that it is not damaged.

## *Division 2—Cap lamps*

### **Types of cap lamps**

**161.** An underground mine's safety and health management system must provide for the following—

- (a) cap lamps for use at the mine to be of a certified type and explosion protection category Ex ia or Ex s;
- (b) a record to be kept of the following for each cap lamp type in use at the mine—
  - (i) its design and construction specifications;
  - (ii) the manufacturer's maintenance and testing recommendations.

### **Facilities and equipment for cap lamps**

**162.** The site senior executive must ensure—

- (a) the mine has the following facilities and equipment for cap lamps—
  - (i) a lamp room;
  - (ii) battery charging stations;
  - (iii) cap lamp battery charging equipment;
  - (iv) the correct tools and testing equipment for repairing and maintaining cap lamps; and
- (b) each battery charging station is adequately ventilated to remove gases generated by the charging.

### **Maintaining and testing cap lamps**

**163.** The underground mine manager must ensure—

- (a) each cap lamp used at the mine is operated for the minimum period stated in the standard against which it is certified immediately before it is tested; and
- (b) the cap lamp is used again only if the test shows its performance is at least 60% of the performance stated in the standard; and
- (c) a record is kept of results of maintenance and testing of cap lamps in use at the mine.

**Identifying and tracking cap lamps**

**164.** The underground mine manager must ensure—

- (a) each cap lamp issued to a person at the mine has a unique identification; and
- (b) a record is kept of the name of the person to whom the cap lamp is issued permanently.

**Restriction on entering below ground at an underground mine without a cap lamp**

**165.** A person must not enter below ground at an underground mine unless the person—

- (a) has been issued with, and is carrying, a cap lamp; and
- (b) is trained in using the cap lamp; and
- (c) has examined the cap lamp, is satisfied it is working correctly, and has not been damaged to an extent that adversely affects its safe use.

**Safety and health management system**

**166.** An underground mine's safety and health management system must provide for the following—

- (a) the use of cap lamps at the mine by the following—
  - (i) a person who is using a lamp other than the lamp that was issued permanently to the person;
  - (ii) a temporary coal mine worker;
  - (iii) a visitor;
- (b) recording the following details about the temporary use of a cap lamp at the mine—
  - (i) the name of the person using it;
  - (ii) the date and time the cap lamp was taken or issued for use by the person;
  - (iii) the unique identification of the cap lamp;

- (c) removing a record mentioned in paragraph (b) when the person to whom the record applies returns the cap lamp.

### **Responsibility of persons using cap lamps**

**167.(1)** While a cap lamp is in the possession or control of the person to whom it has been issued, the person must ensure its safe keeping and, as far as practicable, that it is not damaged.

**(2)** A person to whom a cap lamp has been issued must return the lamp to its allotted position at the battery charging station at the mine—

- (a) at the end of the person's shift or any extension of it for which the lamp was issued; or
- (b) if the person no longer needs the lamp during the person's shift or any extension of it—as soon as possible after the person no longer needs it.

### ***Division 3—Self-escape, aided escape and emergency evacuation***

#### **Safety and health management system for self-escape**

**168.(1)** An underground mine's safety and health management system must provide for the self-escape of persons from the mine, or a part of the mine, to a place of safety.

**(2)** The system must be developed through a risk assessment that includes a consideration of at least the following matters—

- (a) the location of devices for assisting self-escape;
- (b) the number of devices, including self-rescuers, to be distributed throughout the mine;
- (c) selecting and marking the location for reserve self-rescuers;
- (d) the number and location of changeover stations and refuges;
- (e) selecting and marking escape routes;
- (f) communication equipment and ways of using the equipment;
- (g) training persons in self-escape;



(h) fitness of coal mine workers.

(3) The system must provide for a sufficient number of self-rescuers to be placed throughout the mine to enable each person below ground to attempt to escape to the surface if an incident renders the mine, or a part of the mine atmosphere, irrespirable and of poor visibility.

### **Standard operating procedure for self-escape**

**169.(1)** An underground mine must have a standard operating procedure for training the mine's coal mine workers in using escapeways.

(2) The procedure must include the use of exercises under simulated incident conditions.

### **Safety and health management system for aided escape**

**170.(1)** An underground mine's safety and health management system must provide for the aided escape of persons from the mine, or from a place of refuge, to a place of safety.

(2) The escape strategies provided by the system must be capable of implementation whenever a person is below ground at the mine.

### **Safety and health management system for emergency evacuation**

**171.(1)** An underground mine's safety and health management system must provide for the emergency evacuation of persons from the mine, or a part of the mine, to a place of safety.

(2) The system must provide for the following—

- (a) the designation of places of safety where persons may assemble in an emergency;
- (b) the trigger points for evacuating the mine or a part of it;
- (c) periodic exercises to demonstrate the effectiveness of the emergency evacuation system to respond to potential emergencies at the mine.

(3) The site senior executive must consult with workers at the mine in developing the part of the safety and health management system that

provides for the trigger points mentioned in subsection (2)(b) (the “**trigger point provisions**”).

(4) In establishing the trigger points, the site senior executive must comply with section 10,<sup>28</sup> other than section 10(1)(a), as if—

- (a) a reference in the section to a standard operating procedure were a reference to the trigger point provisions; and
- (b) a reference in the section to the coal mine workers with whom the site senior executive consulted were a reference to representatives of the mine’s coal mine workers.

(5) In this section—

“**trigger point**” means an indicator that the level of risk for a particular hazard is unacceptable.

#### *Division 4—Mines rescue*

##### **Emergency response**

**172.(1)** The site senior executive must ensure the mine has emergency response strategies for mines rescue services.

(2) The strategies must provide for external assistance under—

- (a) a mutual assistance scheme between the mine and another mine; or
- (b) a mines rescue agreement.

(3) The strategies must be capable of implementation whenever a person is below ground at the mine.

##### **Mines rescue team**

**173.(1)** The site senior executive must ensure—

- (a) the underground mine has at least the required number of persons certified by an accredited corporation as competent in using

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<sup>28</sup> Section 10 (Developing standard operating procedures)

self-contained breathing apparatus and emergency rescue procedures; and

- (b) the persons are—
  - (i) coal mine workers at the mine; or
  - (ii) other persons whose availability to assist in mines rescue at the mine is secured by an arrangement agreed to in writing by an inspector.

(2) In this section—

**“required number”**, of persons for an underground mine, means the number that is the greater of the following—

- (a) 5;
- (b) 5% of the mine’s coal mine workers.

### **Mines rescue agreement**

**174.** A mines rescue agreement for an underground mine must state the following—

- (a) the minimum mines rescue training to be provided under the agreement;
- (b) the procedure for coal mine operators to help each other in an emergency;
- (c) how inertisation equipment controlled by the accredited corporation is to be used at the mine;
- (d) the operational procedures developed by the accredited corporation to be followed by the corporation in carrying out the mines rescue services at the mine.

### **Inertisation capability**

**175.** An accredited corporation must have—

- (a) an operational inertisation capability, including persons trained in operating inertisation equipment, for any underground mine with which the corporation has a mines rescue agreement; and

- (b) sufficient resources for training persons in operating the equipment.

### *Division 5—Communication systems*

#### **Telephonic communication**

**176.(1)** The site senior executive must ensure the underground mine's telephonic communication system complies with this section and has an adequate fail safe, or backup, power supply for the system.

**(2)** The system's electrical components installed underground must be suitable for use in an ERZO.

**(3)** The system must provide for effective telephonic communication to and from the following places at the mine—

- (a) each entrance underground, and on the surface, through which a person may enter into a shaft or other excavation used for ingress to or egress from the mine workings;
- (b) each underground battery charging station;
- (c) each underground workshop;
- (d) each underground crib room;
- (e) a place close to each switchgear used to isolate or control sections of the underground main electricity distribution system;
- (f) a place close to each underground conveyor belt drivehead;
- (g) a place close to each underground loading or transfer point on the conveyor belt system;
- (h) each emergency refuge chamber;
- (i) a place in each inspection district in the mine not otherwise mentioned in paragraphs (a) to (h).

#### **Coal mine workers must be competent in operating telephonic communication system**

**177.** The underground mine manager must ensure each coal mine worker

at the mine is competent in operating the mine's telephonic communication system.

### **Communication by notices and plans**

**178.(1)** The underground mine manager must ensure the mine has notice boards for displaying safety and health notices and plans—

- (a) at the surface of the mine where coal mine workers assemble before going underground; and
- (b) in each underground crib room.

**(2)** The underground mine manager must ensure the safety and health notices mentioned in subsection (3) are displayed at—

- (a) each place mentioned in subsection (1); and
- (b) each place containing fixed electrical equipment other than the following—
  - (i) cables;
  - (ii) switchgear associated with portable equipment;
  - (iii) isolated remote control switches;
  - (iv) lighting;
  - (v) communications and signalling equipment.

**(3)** For subsection (2), the safety and health notices are the following—

- (a) directions for resuscitating persons suffering from electric shock;
- (b) directions for the procedure in case of fire;
- (c) a direction prohibiting a person from handling, operating or interfering with electrical equipment at the place unless the person—
  - (i) is authorised to take the action; or
  - (ii) is taking action to cut off the electricity supply in an emergency.

## **PART 5—ELECTRICAL EQUIPMENT AND INSTALLATIONS**

### *Division 1—General*

#### **Safety and health management system**

**179.** An underground mine's safety and health management system must provide for the following—

- (a) the safe and secure location of the mine's electrical equipment and installations;
- (b) the design and operation of liquid filled electrical equipment.

### *Division 2—Suitability of electrical equipment and installations*

#### **Application of div 2**

**180.** This division does not apply to electrical equipment and installations that are being used at an underground mine in a life-threatening emergency.

#### **ERZ0**

**181.** The site senior executive must ensure electrical equipment installed or operated in an ERZ0 at the mine is certified as—

- (a) suitable for use in an underground coal mine; and
- (b) having explosion protection category Ex ia or Ex s.

#### **ERZ1**

**182.(1)** The site senior executive must ensure fixed, mobile and transportable electrical equipment installed or operated in an ERZ1 at the mine is certified as—

- (a) suitable for use in an underground coal mine; and
- (b) having explosion protection.

(2) Subsection (1) does not apply to electrical equipment associated with hot work or live testing.

## **NERZ**

**183.(1)** The site senior executive must ensure fixed, mobile and transportable electrical equipment installed or operated in a NERZ at the mine is—

- (a) suitable for use in an underground mine; and
- (b) certified as having either—
  - (i) explosion protection; or
  - (ii) a degree of protection under AS 1939 of at least IP55.

(2) Subsection (1) does not apply to electrical equipment associated with hot work or live testing or installed in a pressurised room.

(3) In this section—

“**pressurised**” means pressurised within the meaning of AS 2380.4 ‘Electrical equipment for explosive atmospheres—Explosion protection techniques—Pressurized rooms or pressurized enclosures’.

## **Enclosures for switchgear**

**184.(1)** The site senior executive must ensure each enclosure containing switchgear at the mine—

- (a) is suitably rated for the prospective electrical fault level at the switchgear; and
- (b) has adequate arc fault control.

(2) Subsection (1) does not apply before 1 January 2011 to an enclosure installed before the commencement of the Act.

## **Record of suitability of electrical equipment and installations**

**185.(1)** The site senior executive must ensure documentation showing the use for which the mine’s electrical equipment and installations is suitable is kept at the mine.

(2) For electrical equipment mentioned in section 181, 182 or 183, the documentation must include the certification mentioned in the section.

### *Division 3—Live testing of electrical equipment and installations*

#### **Live testing in an ERZ**

**186.(1)** A person must not live test electrical equipment or installations, including intrinsically safe electrical equipment and installations, in an ERZ0 at an underground mine.

(2) An underground mine's safety and health management system must provide for—

- (a) live testing electrical equipment and installations in an ERZ1; and
- (b) notice of the live testing to be given to an inspector within 7 days after it is carried out.

#### **Live testing in a NERZ**

**187.(1)** An underground mine must have a standard operating procedure for live testing electrical equipment and installations in a NERZ.

(2) The procedure must include provision for the following—

- (a) limiting live testing to low voltage electrical equipment and installations;
- (b) isolating areas where equipment is being live tested;
- (c) the type of test instruments to be used;
- (d) using high voltage test equipment and discharging stored energy after testing;
- (e) using personal protective equipment;
- (f) dealing with high prospective fault currents.



***Division 4—Electrical cables and accessories*****Selecting, installing and using electrical cables and accessories**

**188.** An underground mine’s safety and health management system must provide for selecting, installing and using electrical cables and electrical cable accessories for use at the mine.

**Repairing and testing reeling, trailing and feeder cables**

**189.(1)** An underground mine’s safety and health management system must provide for repairing and testing reeling, trailing and feeder cables.

**(2)** A person must not use a reeling, trailing or feeder cable at an underground mine if the cable—

- (a) has been found to be defective; and
- (b) has not been effectively repaired and tested under the system.

**(3)** Subsection (2) does not apply if—

- (a) only the outer sheath of the cable is damaged; and
- (b) before the cable is used, the sheath is repaired in a way that satisfies a competent person that the cable can be used without creating an unacceptable level of risk.

**(4)** In this section—

“**competent person**” means a person who is competent in assessing the level of risk from a damaged cable.

***Division 5—Electrical control systems*****Circuit separation**

**190.** The site senior executive must ensure each electrical circuit supplying the mine’s underground electrical distribution system, ventilation system or winding or haulage system is designed so an electrical fault on 1 circuit will not affect another circuit.

**Earth fault current limitation**

**191.(1)** The site senior executive must ensure each electrical circuit at the mine has an earth fault current limitation of not more than—

- (a) for a circuit supplying equipment and cables in an ERZ1 at the mine—5 A; or
- (b) for a high voltage circuit not mentioned in paragraph (a)—10 A; or
- (c) for a low voltage circuit not mentioned in paragraph (a)—5 A.

**(2)** Subsection (1) does not apply to the following—

- (a) an intrinsically safe circuit;
- (b) a circuit operating at not more than 55 V to earth and fully contained in a NERZ or an explosion protected enclosure;
- (c) a circuit isolated from earth.

**(3)** The site senior executive must ensure—

- (a) the neutral point of a transformer secondary winding for an impedance earthed electrical system at the mine is distributed to only the neutral earthing impedance; and
- (b) each part of an impedance earthed, or insulated neutral, electrical system at the mine has a phase to earth insulation level equivalent to the phase to phase insulation level for the electrical system.

**Earth leakage protection**

**192.(1)** The site senior executive must ensure each electrical circuit at the mine operating above 55 V to earth has earth leakage protection with a rated tripping current of not more than—

- (a) for a circuit supplying equipment and cables in an ERZ1—500 mA; or
- (b) for a high voltage circuit not mentioned in paragraph (a)—1 A; or
- (c) for a low voltage circuit not mentioned in paragraph (a)—500 mA.

**(2)** The site senior executive must ensure the operating time ensures the

device cuts off the electricity supply to equipment and cables in an ERZ1, or causes the supply to be cut off, as soon as practicable after the device detects an electrical fault in the circuit.

(3) The site senior executive must ensure each circuit supplying portable electrically operated hand held plant—

- (a) operates at not more than 250 V; and
- (b) has earth leakage current protection of not more than 30 mA sensitivity.

(4) The site senior executive must ensure—

- (a) each circuit supplying a reeling, trailing or feeder cable has earth continuity protection and a lockout earth fault current protection device; and
- (b) if the device is for equipment used in an ERZ1—the device is intrinsically safe.

(5) Subsection (1) does not apply to the following—

- (a) an intrinsically safe circuit;
- (b) a circuit operating at not more than 55 V to earth and fully contained in a NERZ or an explosion protected enclosure;
- (c) a circuit isolated from earth.

(6) Also, subsection (1) does not apply, before 1 January 2011, to an electrical circuit that, immediately before the commencement of this section, complied with the repealed *Coal Mining Act 1925*.

(7) In this section—

**“rated tripping current”** means the electrical current at which the circuit breaker is set to trip.

### **Testing earth leakage protection and earth continuity protection**

**193.** The site senior executive must ensure electrical equipment at the mine having an earth leakage protection device or an earth continuity protection device has an easily accessible external test button on the equipment for effectively testing the device.

**Limitation on earthing conductor's current**

**194.(1)** The site senior executive must ensure an earthing conductor at the mine is not used to carry an electrical circuit's normal current.

**(2)** Subsection (1) does not apply if the conductor is used for earth continuity protection and as a lockout earth fault current protection device.

**Earthing electrodes**

**195.(1)** The site senior executive must ensure earthing electrodes installed for the underground electrical distribution system's connection to earth are located at the surface of the mine.

**(2)** If the mine has more than 1 electrical distribution system, the mine's safety and health management system must provide for the prospective touch voltage at the mine to be limited to a level necessary to achieve an acceptable level of risk.

**(3)** The site senior executive must ensure the ohmic resistance of an earthing electrode assembly for the underground electrical distribution system is kept as low as practicable and does not exceed 1  $\Omega$ .

**(4)** Subsection (3) does not apply before 1 January 2011 to an earthing electrode assembly that, immediately before the commencement of this section, complied with the repealed *Coal Mining Act 1925*.

***Division 6—Miscellaneous*****Battery charging stations**

**196.** An underground mine's safety and health management system must provide for constructing, installing, operating and maintaining the mine's battery charging stations.

**Battery powered vehicles**

**197.(1)** An underground mine's safety and health management system must provide for selecting, constructing, installing and maintaining battery powered vehicles used at the mine.

(2) The site senior executive must ensure a non-explosion protected battery powered vehicle is used—

- (a) only in a NERZ; and
- (b) only if the vehicle's access into an ERZ0 or ERZ1 is prevented by a system that is either fail safe or includes multiple redundancy devices.

### **Traction battery powered vehicles**

**198.** The site senior executive must ensure—

- (a) a vehicle powered by a traction battery and used at the mine is fitted with a detector for, and protection from, battery earth leakage current; and
- (b) the traction battery is adequately ventilated to prevent accumulations of explosive mixtures of hydrogen and air forming in the battery's immediate vicinity.

### **Trolley wire traction systems**

**199.** The site senior executive must ensure a trolley wire traction system is only operated in a NERZ at the mine.

### **Switching and isolating electricity supply**

**200.(1)** The site senior executive must ensure the mine has, at each place where persons enter underground from the surface, either—

- (a) a suitable communication method for advising a person to switch off the electricity supply to underground electrical equipment and cables; or
- (b) a way to switch off the electricity supply.

(2) The electrical engineering manager must ensure a notice giving instructions for subsection (1)(a) and (b) is placed on the notice board at each place mentioned in section 178(1).<sup>29</sup>

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<sup>29</sup> Section 178 (Communication by notices and plans)

**Using fibre optics**

**201.** An underground mine's safety and health management system must provide for the safe use of fibre optic equipment at the mine.

**Using portable electrical equipment**

**202.(1)** An underground mine's safety and health management system must provide for using certified and uncertified portable electrical equipment, other than portable gas detectors, in an ERZ1.

**(2)** The mine must have a standard operating procedure for using certified and uncertified portable electrical equipment, other than portable gas detectors, in a NERZ.

**PART 6—EXPLOSIVES AND EXPLOSIVE POWERED TOOLS*****Division 1—Explosives*****Risk assessment**

**203.** Before the explosives are first used at the mine, the site senior executive must ensure a risk assessment is carried out to identify—

- (a) the hazards involved in transporting, storing and using explosives; and
- (b) the ways of effectively controlling the hazards.

**Authorised explosives**

**204.** The site senior executive must ensure explosives used at the mine are authorised by the chief inspector for the *Explosives Act 1999* as suitable for use in an underground mine.

**Transporting and storing explosives underground**

**205.(1)** The site senior executive must ensure explosives are not transported, or stored, underground unless the explosives are enclosed in a container complying with this section.

**(2)** The container must be—

- (a) conspicuously labelled with the word ‘EXPLOSIVES’ printed in red on a white background; and
- (b) designed and constructed—
  - (i) to minimise damage from impact; and
  - (ii) to prevent the following—
    - (A) friction sparks;
    - (B) the build-up and retention of static electricity;
    - (C) the explosives spilling; and
- (c) for containers for detonators or detonator sensitive explosives—lined with timber or other shock absorbing material; and
- (d) locked; and
- (e) used only for transporting or storing explosives underground.

**(3)** The container must not contain more than 1 type of explosive.

**(4)** However, subsection (3) does not apply to a container—

- (a) in which prepared primers are transported during the construction of a shaft, drift or rise; or
- (b) used by a person who is competent in handling explosives for carrying the explosives to the place where they will be charged and fired.

**Temporarily storing explosives underground**

**206.(1)** The underground mine manager must ensure explosives in a quantity appropriate for a particular job at the mine are stored in an underground explosive storage under this section only while the job is in progress.

(2) The underground explosive storage must—

- (a) be—
  - (i) in a NERZ; and
  - (ii) in a location that minimises the risk of the explosives suffering an impact or being buried or burnt; and
  - (iii) free of rubbish, particularly rubbish of a flammable nature; and
  - (iv) clearly marked by a flashing red light, or other warning device, as an underground explosive storage; and
- (b) have fire fighting facilities situated on the intake air side close to the storage.

(3) Material other than explosives and explosive containers must not be stored in the storage.

(4) A container of detonators must be stored separately, by at least 10 m, from a container of other explosive in the storage.

(5) The underground mine manager must keep a record of the number and location of underground explosive storages at the mine.

(6) The underground mine manager must ensure that when the job is finished, or if it is delayed for more than 48 hours, all unused explosives for the job are returned immediately and stored in surface magazines.

### **Reconciling issue and use of explosives**

**207.** An underground mine's safety and health management system must provide for—

- (a) routinely reconciling explosives issued from surface magazines with explosives used or stored underground; and
- (b) immediately reporting any discrepancies to the underground mine manager, police, and an inspector for the district in which the mine is located.

### **Vehicles used to transport explosives**

**208.** The site senior executive must ensure a vehicle used to transport



explosives at the mine has appropriate facilities for the following—

- (a) securing explosive containers to the vehicle;
- (b) protecting the explosive containers against impact.

### **Issuing, and dealing with, explosives**

**209.(1)** A person must not issue explosives to a person at an underground mine unless the person to whom the explosives are issued—

- (a) has the underground mine manager's authority to be issued with the explosives; and
- (b) either—
  - (i) has the recognised competencies of an underground shotfirer; or
  - (ii) is working under the direction of a underground shotfirer and—
    - (A) has the recognised competencies of an assistant underground shotfirer; or
    - (B) is undergoing training as an underground shotfirer or assistant underground shotfirer.

**(2)** A person must not deal with explosives at an underground mine unless the person—

- (a) has the underground mine manager's authority to be issued with the explosives; and
- (b) either—
  - (i) has the recognised competencies of an underground shotfirer; or
  - (ii) is working under the direction of a underground shotfirer and—
    - (A) has the recognised competencies of an assistant underground shotfirer; or
    - (B) is undergoing training as an underground shotfirer or assistant underground shotfirer.

(3) An assistant underground shotfirer must not connect or fire explosive charges.

(4) In this section—

“deal”, with an explosive, means handle, prepare, charge or fire the explosive.

### **Supervising and controlling shotfiring**

**210.** The site senior executive must ensure coal mining operations where shotfiring activities are taking place are directly supervised and controlled by a person holding a first or second class certificate of competency or a deputy's certificate of competency.

### **Supervising person undertaking shotfiring training**

**211.** An underground shotfirer must not, at any 1 time, supervise the activities of more than 1 person who is undertaking shotfiring training.

### **Equipment for initiating explosions**

**212.** The underground mine manager must ensure—

- (a) only certified equipment is used to initiate an explosion at the mine; and
- (b) the equipment is kept under the control of an underground shotfirer.

### **Where explosives for shotfiring may be used**

**213.(1)** The person directly supervising and controlling a shotfiring activity at an underground mine must ensure the place where the explosives are prepared, charged or fired has the following features—

- (a) a general body concentration of methane of less than 0.5%;
- (b) a ventilation current capable of quickly diluting and removing any atmospheric contaminants released by the shot;
- (c) its exposed surfaces within a radius of 20 m from the location of

the shot either—

- (i) thoroughly saturated with water; or
- (ii) treated with stonedust so the deposited dust mixture comprises an incombustible coal dust concentration of at least 85%.

(2) Subsection (1)(c) does not apply to an excavation—

- (a) in stone and in which—
  - (i) the full length of the shothole is in stone; and
  - (ii) no coal is exposed, or coal dust deposited, within a 20 m radius of the shot location; or
- (b) more than 5 m from the nearest known coal seam.

### **Action to be taken if a shot misfires**

**214.** If a shot misfires, the shotfirer must take the following action—

- (a) barricade each entrance to the place where the shot was fired;
- (b) immediately report the misfire to any person about to work at the location of the misfire;
- (c) if possible, remedy the misfired shot;
- (d) prevent any work, other than work required to remedy the misfired shot, from being carried out in the vicinity of the shot;
- (e) at the end of the shift in which the misfire happened—
  - (i) prepare a written record of the location and details of the misfired shot and the action taken to remedy the shot; and
  - (ii) ensure a copy of the record is given to—
    - (A) the person in charge of the shift in which the misfire happened; and
    - (B) at the start of the next shift—the person in charge of that shift.

**Isolating electrical circuits**

**215.(1)** This section applies to electrical equipment and circuits—

- (a) other than electrical equipment and circuits used for handling, preparing, charging and firing an explosive; and
- (b) located—
  - (i) at a place in an underground mine where an explosive for shotfiring is handled, prepared, charged or fired; or
  - (ii) in the immediate proximity of an electric cable used to fire a charge.

**(2)** The shotfirer must ensure the equipment and circuits are effectively isolated while the explosive is being handled, prepared, charged or fired.

**Isolating radio transmission devices**

**216.(1)** This section applies to an underground mine where explosives are fired by an electric detonator.

**(2)** The shotfirer must ensure each radio transmitting device installed at the mine is turned off while the explosives are being handled, prepared, charged and fired.

**(3)** Subsection (2) does not apply if the type, location, radio frequency and power output of the transmitting device will not cause the electric detonator to fire.

**Limiting duration of the shot sequence**

**217.(1)** This section applies if delay detonators are being used to fire a shot in an ERZ1.

**(2)** The shotfirer must ensure the time from firing the first detonator to firing the last detonator does not exceed 250 ms.

***Division 2—Explosive powered tools*****Issuing explosive powered tools**

**218.** A person must not issue an explosive powered tool, or a cartridge for an explosive powered tool, to a person at an underground mine unless the person to whom the tool or cartridge is issued—

- (a) has the underground mine manager's authority to be issued with the tool or cartridge; and
- (b) is working under the direct supervision of an ERZ controller for the mine, or a person who holds a higher certificate of competency; and
- (c) either—
  - (i) has the recognised competencies to use explosive powered tools; or
  - (ii) is undergoing training for the competencies.

**Charging or firing explosive powered tools**

**219.** A person must not charge or fire an explosive powered tool at an underground mine unless the person—

- (a) has the underground mine manager's authority to be issued with the explosives; and
- (b) is working under the direct supervision of an ERZ controller for the mine, or a person who holds a higher certificate of competency; and
- (c) either—
  - (i) has the recognised competencies to use explosive powered tools; or
  - (ii) is undergoing training for the competencies.

**Where explosive powered tools may be used**

**220.** The person directly supervising and controlling the use of an

explosive powered tool at an underground mine must ensure the place where the tool is used has the following features—

- (a) a general body concentration of methane of less than 0.5%;
- (b) its exposed surfaces within a radius of 20 m from where the tool was fired either—
  - (i) thoroughly saturated with water; or
  - (ii) treated with stonedust so the deposited dust mixture comprises an incombustible coal dust concentration of at least 85%.

***Division 3—Standard operating procedures for explosives and explosive powered tools***

**Standard operating procedures**

**221.(1)** An underground mine must have a standard operating procedure for using explosives and explosive powered tools based on the risk assessment carried out under section 203.

**(2)** The procedure must include provision for the following—

- (a) transporting explosives underground;
- (b) storing explosives underground;
- (c) selecting, handling, preparing, charging and firing explosives;
- (d) using explosive powered tools;
- (e) inspecting for flammable gas and combustible dust before a shot or explosive powered tool is fired;
- (f) inspecting for flammable gas, airborne contaminants, blast damage and misfires after a shot is fired;
- (g) establishing the location of—
  - (i) other workplaces likely to be affected by the shotfiring; and
  - (ii) persons likely to be affected by a shot or explosive powered tool;
- (h) warning persons mentioned in paragraph (g)(ii) and, if necessary,

evacuating them or preventing them from entering a dangerous place;

- (i) preventing persons being affected by fumes from used explosives;
- (j) protecting strata supports, ventilation control devices, equipment and other structures from blast damage;
- (k) dealing with misfired explosives or things likely to contain a misfired explosive;
- (l) testing equipment used for shotfiring;
- (m) conditions under which, and locations where, only explosives declared under the *Explosives Act 1999*<sup>30</sup> to be authorised explosives may be used for shotfiring purposes;
- (n) recording blasting details;
- (o) disposing of explosives safely.

## **PART 7—GAS MONITORING SYSTEM**

### *Division 1—Safety and health management system*

#### **Gas monitoring system**

**222.(1)** An underground mine's safety and health management system must provide for a gas monitoring system complying with this section.

**(2)** The gas monitoring system must provide for the following—

- (a) continual monitoring of the mine atmosphere at the places mentioned in section 223(1), to detect methane, carbon monoxide, carbon dioxide and oxygen;
- (b) automatically detecting or calculating the values and trends of the following—

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<sup>30</sup> See *Explosives Act 1999*, section 8 (Authorised explosives).

- (i) gas concentrations;
  - (ii) the ratio of carbon monoxide and oxygen deficiency;<sup>31</sup>
  - (iii) the ratio of carbon monoxide and carbon dioxide;
  - (iv) gas explosibility;
- (c) automatically activating an alarm if a gas alarm level is exceeded;
- (d) recording the values and trends mentioned in paragraph (b) and displaying the record—
- (i) at the surface of the mine where the record can be easily accessed by coal mine workers; and
  - (ii) in a way that the record can be easily read by the workers;
- (e) keeping the information on which the values and trends mentioned in paragraph (d) were based at the mine in a way that enables the information to be easily accessed and inspected.
- (3)** The gas monitoring system must also provide for—
- (a) an alternative electricity supply to ensure the system continues to function if the normal electricity supply fails; and
  - (b) electrical equipment installed and operated underground for the system to have the following explosion protection category—
    - (i) for equipment other than a gas detector head—Ex ia;
    - (ii) for a gas detector head—Ex ia or Ex s.

### **Sampling mine atmosphere**

**223.(1)** An underground mine's safety and health management system must provide for sampling the mine atmosphere, using the mine's gas monitoring system, at the following places—

- (a) the return airway of each ventilation split;
- (b) the return airway from each unsealed waste, idle workings and goaf area;
- (c) each return airway at an upcast fan;

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<sup>31</sup> This ratio is commonly known as Graham's ratio.



- (d) the return end of each conveyor belt roadway;
- (e) other places stated in the mine's principal hazard management plan for gas monitoring as places where gas monitoring must be carried out.

(2) The safety and health management system must also provide for a regularly updated plan to be kept at the mine showing the location of—

- (a) the sampling point for each of the places mentioned in subsection (1); and
- (b) each of the mine's ventilation control devices designated under section 351(1).<sup>32</sup>

(3) A person must not relocate equipment used for sampling without the ventilation officer's authorisation.

### **Gas alarm levels**

**224.(1)** An underground mine's principal hazard management plan for gas monitoring must state the values and ratios for gas, mentioned in section 222(2)(b), that are gas alarm levels.

(2) The mine must have a standard operating procedure for changing the gas alarm levels, including recording the following details—

- (a) the nature of, and reason for, the change;
- (b) the date it was made;
- (c) the name of the person who made it.

### **Changing gas alarm level settings**

**225.** A person must not change a gas alarm level setting without the ventilation officer's authorisation.

### **Acknowledging alarms**

**226.(1)** An underground mine must have a standard operating procedure

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<sup>32</sup> Section 351 (Interfering with ventilation control devices)

for acknowledging alarms that are activated when gas alarm levels are exceeded.

- (2) The procedure must provide for at least 1 person to be—
- (a) on the surface when a person is underground; and
  - (b) authorised by the underground mine manager to acknowledge the alarms.

### *Division 2—Methane and other gas detectors*

#### *Subdivision 1—General*

#### **Portable gas detectors**

227. The site senior executive must ensure—
- (a) the mine has a sufficient number of portable gas detectors capable of detecting the presence of methane, carbon monoxide and oxygen in the mine atmosphere; and
  - (b) each portable gas detector used at the mine is certified as—
    - (i) suitable for use in an underground coal mine; and
    - (ii) having the following explosion protection category—
      - (A) for parts of the detector other than the gas detector head—Ex ia;
      - (B) for the gas detector head—Ex ia or Ex s; and
    - (iii) capable of detecting the type of gas for which it is intended to be used; and
  - (c) each portable gas detector is tested and calibrated to ensure its accuracy and reliability.

#### **Providing portable gas detectors**

- 228.(1) The site senior executive must ensure each person appointed

under section 60(8) or (9) of the Act<sup>33</sup> for the mine is provided with a portable gas detector.

(2) The site senior executive may provide a portable gas detector to a person, other than a person appointed under section 60(8) or (9) of the Act, only if the person is—

- (a) appointed by the underground mine manager to use the detector; and
- (b) competent in its use.

(3) A person provided with a portable gas detector must keep the detector in the person's possession or under the person's direct control while it is in use underground.

### **Fixed methane detectors**

**229.(1)** This section applies to a fixed methane detector at an underground mine that is—

- (a) fitted to equipment; or
- (b) a self-contained unit located at a particular place; or
- (c) part of the gas monitoring system.

(2) The site senior executive must ensure that if the detector malfunctions or fails it will automatically—

- (a) shut down the equipment, or part of the equipment, it is monitoring; and
- (b) give a visible alarm.

(3) Subsection (2)(a) does not apply if the equipment or part is fitted with more than 1 methane detector and 1 of the detectors remains operational.

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<sup>33</sup> Section 60 (Additional requirements for management of underground mines) of the Act

***Subdivision 2—Plant to be fitted with methane detectors*****Plant to be fitted with methane detectors**

**230.** The site senior executive must ensure a plant item used at the mine and mentioned in this subdivision is fitted with methane detectors under this subdivision.

**Auxiliary, or booster, fan**

**231.(1)** An auxiliary or booster fan must be fitted with at least 1 automatic methane detector to detect the general body concentration of methane at the fan.

**(2)** For an auxiliary fan, the detector must automatically trip the electricity supply to the fan when the concentration exceeds 1.25%.

**(3)** For a booster fan, the detector must automatically activate a visible alarm when the concentration exceeds 1.25%.

**(4)** This section does not apply, before 1 July 2001, to an auxiliary fan if a person—

- (a)** monitors the general body concentration of methane at the fan every 4 hours by using a portable methane detector that gives an audible and visible alarm when the concentration exceeds 1% and 1.25%; and
- (b)** disconnects the electricity supply to the fan when the concentration exceeds 1.25%.

**Main exhausting fan**

**232.(1)** A main exhausting fan must be fitted with at least 1 automatic methane detector to detect the general body concentration of methane in the mine's ventilating air.

**(2)** The detector must automatically activate a visible alarm when the concentration exceeds the percentage stated in the mine's principal hazard management plan for ventilation as the percentage that must not be exceeded before the detector activates the alarm.

**Coal cutter, continuous miner, tunnel boring and road heading machine**

**233.(1)** A coal cutter, continuous miner, tunnel boring or road heading machine must be fitted with at least 1 automatic methane detector to detect the methane concentration near the cutters.

**(2)** If the machine is fitted with only 1 automatic methane detector, the detector must automatically—

- (a) activate a visible alarm to warn the operator when the concentration exceeds 1%; and
- (b) trip the electricity supply to the machine when the concentration exceeds 2%.

**(3)** If the machine is fitted with more than 1 automatic methane detector—

- (a) a detector fitted to detect the methane concentration near the cutters must automatically—
  - (i) activate a visible alarm to warn the operator when the concentration exceeds 1%; and
  - (ii) trip the electricity supply to the cutters when the concentration exceeds 2%; and
- (b) a detector fitted to detect the general body concentration of methane around the machine must automatically—
  - (i) activate a visible alarm to warn the operator when the concentration exceeds 1%; and
  - (ii) trip the electricity supply to the machine when the concentration exceeds 2%.

**Longwall shearer**

**234.(1)** Subject to subsection (2), a longwall shearer must be fitted with at least 1 automatic methane detector to detect the general body concentration of methane around the machine.

**(2)** A longwall shearer in use at an underground mine immediately before the commencement of this section, must be fitted with the detector before or during the first longwall changeover involving the shearer after the

commencement.

(3) The detector must automatically—

- (a) activate a visible alarm to warn the operator when the concentration exceeds 1%; and
- (b) trip the electricity supply to—
  - (i) the cutters when the concentration exceeds 1.25%; and
  - (ii) the machine when the concentration exceeds 2%.

### **Mobile bolting machine**

**235.(1)** A mobile bolting machine must be fitted with at least 1 automatic methane detector to detect the general body concentration of methane around the machine.

(2) The detector must automatically—

- (a) activate a visible alarm to warn the operator when the concentration exceeds 1%; and
- (b) trip the electricity supply to the machine when the concentration exceeds 2%.

(3) This section does not apply, before 1 July 2001, to a mobile bolting machine if the person operating the bolter—

- (a) continuously monitors the general body concentration of methane at the bolter by using a portable methane detector that gives an audible and visible alarm when the concentration exceeds 1% and 2%; and
- (b) disconnects the electricity supply to the bolter when the concentration exceeds 2%.

### **Explosion protected electrically powered loader**

**236.(1)** An explosion protected electrically powered loader must be fitted with at least 1 automatic methane detector to detect the general body concentration of methane around the machine.

(2) The detector must automatically—

- (a) activate a visible alarm to warn the operator when the concentration exceeds 1%; and
- (b) trip the electricity supply to the loader when the concentration exceeds 2%.

(3) This section does not apply, before 1 January 2006, to a loader that is—

- (a) constructed before 1 July 2001; and
- (b) in a location that is inspected periodically by a person using a portable methane detector; and
- (c) being operated by a person using a portable methane detector that gives an audible and visible alarm when the concentration exceeds 1% and 1.25%.

### **Explosion protected load-haul dump vehicle powered by a battery or internal combustion engine**

**237.(1)** This section applies to an explosion protected load-haul dump vehicle powered by a battery, or internal combustion engine, used in an ERZ1.

(2) The vehicle must be fitted with at least 1 automatic methane detector to detect the general body concentration of methane around the vehicle.

(3) The detector must automatically—

- (a) activate a visible alarm to warn the operator when the concentration exceeds 1%; and
- (b) trip the electricity supply to the vehicle's electrical motors, or stop its internal combustion engine, when the concentration exceeds 2%.

(4) This section does not apply, before 1 January 2006, to a vehicle that is—

- (a) constructed before 1 July 2001; and
- (b) in a location that is inspected periodically by a person using a portable methane detector; and
- (c) being operated by a person using a portable methane detector that

gives an audible and visible alarm when the concentration exceeds 1% and 1.25%.

### **Other explosion protected vehicles powered by battery or internal combustion engines**

**238.(1)** A battery, or internal combustion engine, powered explosion protected vehicle, other than a load-haul dump vehicle, must be fitted with at least 1 automatic methane detector to detect the general body concentration of methane around the vehicle.

(2) The detector must automatically—

- (a) activate a visible alarm to warn the operator when the concentration exceeds 1%; and
- (b) trip the electricity supply to the vehicle's electrical motors, or stop its internal combustion engine, when the concentration exceeds 1.25%.

(3) This section does not apply if the vehicle is being operated in a location that is inspected periodically by a person using a portable methane detector.

(4) Also, this section does not apply, before 1 January 2006, to a vehicle that is—

- (a) constructed before 1 July 2001; and
- (b) in a location that is inspected periodically by a person using a portable methane detector; and
- (c) being operated by a person using a portable methane detector that gives an audible and visible alarm when the concentration exceeds 1% and 1.25%.

### **Other explosion protected electrical plant**

**239.(1)** This section applies to explosion protected electrical plant supplied with electricity by a trailing cable, other than plant—

- (a) mentioned in sections 233 to 238; or
- (b) having explosion protection category Ex ia.



(2) The plant must be fitted with at least 1 automatic methane detector to detect the general body concentration of methane around the plant.

(3) The detector must automatically trip the electricity supply to the plant when the concentration exceeds 2%.

(4) This section does not apply if the plant is being operated in a location that is inspected periodically by a person using a portable methane detector.

### **Non-explosion protected vehicle**

**240.(1)** This section applies to a non-explosion protected vehicle powered by a battery, or internal combustion engine.

(2) The vehicle must be fitted with at least 1 automatic methane detector to detect the general body concentration of methane around the vehicle.

(3) The detector must automatically—

- (a) activate a visible alarm to warn the operator when the concentration exceeds 0.25%; and
- (b) trip the electricity supply to the vehicle's electrical motors, or stop its internal combustion engine, when the concentration exceeds 0.5%.

(4) This section does not apply, before 1 July 2001, to a vehicle that is—

- (a) in a location that is inspected periodically by a person using a portable methane detector; and
- (b) being operated by a person using a portable methane detector that gives an audible and visible alarm when the concentration exceeds 0.25% and 0.5%.

### ***Subdivision 3—Places where methane detectors must be located***

#### **Places where methane detectors must be located**

**241.** The site senior executive must ensure a place mentioned in this subdivision has automatic methane detectors located at the place under this subdivision.

**Intake airways**

**242.(1)** At least 1 automatic methane detector must be located in each intake airway at the interface between—

- (a) a NERZ and ERZ1; and
- (b) 2 NERZs.

*Example of interface between 2 NERZs—*

The interface between subdivided parts of a NERZ.

**(2)** A detector located at an interface between a NERZ and ERZ1 must—

- (a) when the general body concentration of methane detected at the interface exceeds 0.25%—automatically activate a visible alarm; and
- (b) when the general body concentration of methane detected at the interface exceeds 0.5%—automatically trip the electricity supply to non-intrinsically safe plant in—
  - (i) the ERZ1 and NERZ; or
  - (ii) if the NERZ has been subdivided—the ERZ1 and the subdivided part of the NERZ adjacent to the ERZ1.

**(3)** A detector located at the interface between a NERZ and an ERZ1 must be a self-contained unit or part of the gas monitoring system for the mine.

**(4)** A detector located at an interface between 2 NERZs must—

- (a) automatically activate a visible alarm when the general body concentration of methane detected at the interface exceeds 0.25%; and
- (b) if the NERZ has been subdivided—automatically trip the electricity supply to non-intrinsically safe plant in the adjacent subdivided part when the general body concentration of methane detected at the interface exceeds 0.5%.

**Main return airway and return airway in a ventilation split**

**243.(1)** At least 1 automatic methane detector must be located in—

- (a) each main return airway; and

(b) each return airway in a ventilation split.

(2) The detector must automatically activate a visible alarm when the general body concentration of methane detected in the return air exceeds the percentage stated in the mine's principal hazard management plan for ventilation as the percentage that must not be exceeded before the detector activates the alarm.

### **Longwall face**

**244.(1)** At least 1 automatic methane detector must be located at the following places—

- (a) the intersection between the longwall face and an intake airway;
- (b) the intersection between the longwall face and the return airway.

(2) A detector located between the longwall face and an intake airway must automatically trip the electricity supply to longwall equipment in the longwall face and intake airway when the general body concentration of methane detected at the intersection exceeds 2%.

(3) A detector located between the intersection between the longwall face and the return airway must automatically trip the electricity supply to longwall equipment in the longwall face and return airway when the general body concentration of methane detected at the intersection exceeds 2%.

### ***Division 3—Action to be taken if methane is detected or methane detector is non-operational***

#### **Explosion protected electrically powered loader**

**245.** If a general body concentration of methane exceeding 1.25% is detected around an explosion protected electrically powered loader that is not fitted with an automatic methane detector, the loader operator must switch off the electricity supply to the loader's trailing cable.

#### **Explosion protected vehicle powered by a battery, or internal combustion engine**

**246.(1)** This section applies to an explosion protected vehicle powered by

a battery, or internal combustion engine and fitted with 1 automatic methane detector.

(2) If a general body concentration of methane of at least 1% is detected around the vehicle, the vehicle operator must immediately withdraw the vehicle to a place where the general body concentration of methane is less than 1%.

(3) If a general body concentration of methane of at least 1.25% is detected around a vehicle constructed before 1 July 2001 that is not fitted with a methane detector, the vehicle operator must immediately switch off the electrical motors or internal combustion engine.

### **Other explosion protected electrical plant**

**247.(1)** This section applies to explosion protected electrical plant supplied with electricity by a trailing cable, other than plant—

- (a) mentioned in sections 245 and 246; or
- (b) fitted with an automatic methane detector; or
- (c) having explosion protection category Ex ia.

(2) If a general body concentration of methane of at least 1.25% is detected around the plant, the person detecting the methane must immediately switch off the electricity supply to the equipment's trailing cable.

### **Non-explosion protected vehicle powered by a battery or internal combustion engine**

**248.(1)** This section applies to a non-explosion protected vehicle powered by a battery or internal combustion engine and not fitted with an automatic methane detector.

(2) If a general body concentration of methane of at least 0.5% is detected around the vehicle, the vehicle operator must immediately switch off the electrical motors or internal combustion engine.

**Ventilation split or main return airway**

**249.** An underground mine must have a standard operating procedure for taking action when methane, at a general body concentration stated in the procedure, is detected at a ventilation split or main return airway.

**Action to be taken if methane detector activates or is non-operational**

**250.(1)** An underground mine must have a standard operating procedure for taking action when any of the following happen—

- (a) an automatic methane detector fitted to a machine or vehicle mentioned in section 233, 234, 237 or 238 trips the electricity supply to the machine or vehicle;
- (b) a methane detector mentioned in paragraph (a) fails in service;
- (c) a methane detector located at the interface between a NERZ and an ERZ1, or between adjoining NERZs, fails in service or is being tested or relocated.

**(2)** The procedure may provide that, if an event mentioned in subsection (1) happens, the methane detector may be temporarily overridden to allow the machine or vehicle to be moved but only if—

- (a) the general body concentration of methane around the machine or vehicle is less than 1.25%; and
- (b) a portable methane detector is used to continuously monitor the concentration.

**(3)** The procedure may also provide that—

- (a) if an event mentioned in subsection (1)(b) happens—
  - (i) the methane detector must be replaced or repaired as soon as practicable but no later than the end of the shift in which the failure happened; and
  - (ii) if the event happens while the machine or vehicle is being moved, the operator may continue to move the machine or vehicle but only if—
    - (A) the general body concentration of methane around the machine or vehicle is less than 0.5%; and

- (B) the place where the machine or vehicle is located is monitored by using a portable gas detector; or
- (b) if an event mentioned in subsection (1)(c) happens, the methane detector—
  - (i) must be replaced or repaired as soon as practicable; and
  - (ii) may be overridden temporarily to allow operations to continue in the zones until the detector is replaced or repaired, but only if a portable methane detector is used to continually monitor for methane at the interface.

#### *Division 4—Miscellaneous*

#### **Record of tripping of electricity supply**

**251.(1)** This section applies if an electricity supply is tripped by an automatic methane detector—

- (a) located at the interface between a NERZ and an ERZ1, or between adjoining NERZs; or
- (b) fitted to a non-explosion protected vehicle.

**(2)** The underground mine manager must ensure a record is kept of the date and time of the event.

#### **General back-up for gas monitoring system**

**252.(1)** An underground mine's principal hazard management plan for gas monitoring must state the number of portable gas detectors the mine must have to manage risk in the event of a failure or the non-operation of the gas monitoring system.

*Example of non-operation of the gas monitoring system—*

A non-operation caused by the repair, testing or maintenance of the system.

**(2)** The mine must have a standard operating procedure for using the portable gas detectors in the event of the failure or non-operation.

**(3)** If the system fails or becomes non-operational, the site senior executive must ensure coal mining operations are not carried out in the part

of the mine affected by the failure or non-operation unless the part is continually monitored, using portable gas detectors, to achieve an acceptable level of risk.

### **Withdrawal of persons in case of danger caused by failure or non-operation of gas monitoring system**

**253.** For section 273 of the Act,<sup>34</sup> a part of an underground mine is taken to be dangerous if the part is affected by the failure or non-operation of the gas monitoring system and the mine does not have—

- (a) a standard operating procedure for using portable gas detectors; or
- (b) sufficient portable gas detectors to continually monitor the part to the extent necessary to achieve an acceptable level of risk.

## **PART 8—MECHANICAL**

### *Division 1—Aluminium alloys*

#### **Using aluminium alloys underground**

**254.(1)** The underground mine manager must ensure an exposed aluminium alloy is not used underground at the mine if it contains more than 6% by mass of combined magnesium and titanium.

**(2)** The underground mine manager must also ensure external rotating or reciprocating parts of plant used underground are not constructed of alloys containing more than 0.6% magnesium and titanium combined.

#### **Standard operating procedure**

**255.(1)** An underground mine must have a standard operating procedure for the following—

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<sup>34</sup> Section 273 (Withdrawal of persons in case of danger) of the Act

- (a) storing, transporting, handling and using alloy objects and equipment underground;
- (b) disposing of alloy objects and equipment.

(2) Without limiting subsection (1), the procedure must have regard to the explosive or combustible nature of accumulated alloy dust.

### *Division 2—Conveyors*

#### **Belt conveyors**

**256.** The site senior executive for an underground mine must ensure each belt conveyor used at the mine has the following features—

- (a) an emergency stop system capable of being activated from any point along the length of the conveyor where persons have access;
- (b) certified fire resistant and antistatic conveyor belting and drum lagging.

#### **Designing, installing, inspecting and maintaining conveyors**

**257.(1)** An underground mine's safety and health management system must provide for designing, installing, inspecting and maintaining conveyors used at the mine.

(2) The system must provide for the circumstances in which stopped conveyors must be inspected before being restarted.

#### **Riding on, or crossing over or under, a conveyor**

**258.(1)** A person must not ride on a conveyor at an underground mine unless the conveyor is designed for the purpose.

(2) A person must not cross over or under a moving conveyor at an underground mine other than at a place provided for the purpose.

(3) The mine's safety and health management system must provide for protecting persons travelling under a conveyor against falling objects.



### ***Division 3—Stored energy***

#### **Compressed air equipment**

**259.(1)** An underground mine's safety and health management system must provide for managing risk from using compressed air underground.

*Example of how the risk may be managed—*

By locating compressors on the surface.

**(2)** The system must include provision for the electrical bonding to earth of compressed air equipment, hoses and pipes that are likely, during operation, to develop static electrical charges capable of causing an electric shock to a person or a spark.

*Examples of hoses and pipes likely to develop static electrical charges—*

1. Ventilation ducting.
2. A hose that is not antistatic.

### ***Division 4—Transport***

#### **Safety and health management system**

**260.(1)** An underground mine's safety and health management system must provide for the safe transport of persons, material and equipment at the mine.

**(2)** The system must include provision for the following—

- (a) securing equipment or material carried in a compartment of a vehicle in which a person is also being carried at the mine;
- (b) routine testing of undiluted exhaust emissions from an internal combustion engine used underground;
- (c) moving, operating and parking vehicles;
- (d) storing fuel for vehicles;
- (e) ensuring the safety of pedestrians on roadways used by vehicles, by providing, for example, for clearances, refuges and other hazard controls;

- (f) carrying out a risk assessment for a vehicle before it is used at the mine, including, for example, an assessment of the following—
  - (i) the vehicle's impact on, and suitability for, the mine;
  - (ii) the safety of operators, passengers and other persons near the vehicle when it is in use or being parked;
- (g) allowable loads, clearances, speeds and operating gradients for vehicles;
- (h) periodic inspection and testing, at intervals of not more than 8 days, of the braking systems for vehicles.

(3) The system must be developed having regard to any information about hazards associated with vehicles at underground mines kept by the chief executive under section 280(1)(a) of the Act.<sup>35</sup>

### **Using vehicles powered by internal combustion engines**

**261.(1)** The site senior executive must ensure a vehicle powered by a non-explosion protected internal combustion engine is used—

- (a) only in a NERZ at the mine; and
- (b) only if—
  - (i) any hazard controls for its operation as decided by a risk assessment mentioned in section 260(2)(f) are implemented; and
  - (ii) the vehicle's access into an ERZ1 is prevented by a system that is either fail safe or includes multiple redundancy devices.

(2) The site senior executive must ensure a vehicle powered by a certified explosion protected compression ignition engine is used only in a NERZ or an ERZ1.

### **Conveyances forming part of a train**

**262.(1)** The site senior executive must ensure each coupling device of a

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<sup>35</sup> Section 280 (Chief executive to keep records) of the Act

train used to transport persons at the mine is capable of preventing the conveyance to which it is attached from being disconnected accidentally from the train.

(2) The site senior executive must also ensure the conveyance has an automatically operated safety device either in the mine or on the train, or both in the mine and on the train, to prevent the conveyance's uncontrolled movement.

### *Division 5—Hot work*

#### **Unauthorised hot work**

**263.** A person must not carry out hot work in a place, other than a permanent underground workshop, unless the person is authorised by the underground mine manager to carry out the work in the place.

#### **Notice to inspector of hot work**

**264.** The underground mine manager must give an inspector notice of hot work carried out at the mine, other than in a permanent underground workshop, within 7 days after the work is finished.

#### **Safety and health management system for hot work**

**265.(1)** An underground mine's safety and health management system must provide for carrying out hot work in a place at the mine other than a permanent underground workshop.

(2) The system must include provision for the following—

- (a) while hot work is being carried out—
  - (i) controlling the effects of methane inrushes; and
  - (ii) keeping the general body concentration of methane to less than 0.5%; and
  - (iii) stopping work and quenching hot material if the concentration exceeds 0.5%;
- (b) carrying out a risk assessment before the hot work is started;

- (c) stone dusting to at least 85% incombustible content on all roadways connected to the place for the appropriate distance decided by the risk assessment;
- (d) posting a fire watch during and after the hot work is completed;
- (e) restricting access by persons, other than persons involved in the work, to the ventilation split in which the work is being carried out;
- (f) returning equipment used to carry out the hot work after the work is finished;
- (g) keeping a record of the hot work carried out.

(3) The system must also provide for a person with a first or second class, or deputy's, certificate of competency to—

- (a) carry out inspections identified as necessary under the risk assessment; and
- (b) be present at the place where the hot work is carried out while it is being carried out.

### **Safety and health management system for permanent underground workshops**

**266.(1)** An underground mine's safety and health management system must provide for the following for each permanent underground workshop at the mine—

- (a) constructing, maintaining and operating the workshop;
- (b) carrying out hot work in the workshop.

(2) The system must include provision for the following—

- (a) restricting the workshop location to a NERZ;
- (b) stopping work and quenching hot material if the general body concentration of methane in the workshop exceeds 0.5%.

(3) The system must also provide for a person with a first or second class, or deputy's, certificate of competency to—

- (a) inspect the workshop for flammable gas before hot work is started in the workshop; and

(b) carry out any other inspections identified as necessary under the risk assessment mentioned in section 265(2)(b).

(4) Nothing in this section prevents another person also inspecting the workshop for methane while hot work is being carried out in the workshop.

### *Division 6—Winders, slope haulages and hoists*

#### *Subdivision 1—Design and installation of equipment and shafts generally*

#### **Winders and slope haulages**

**267.(1)** The site senior executive must ensure each winder and slope haulage used at the mine complies with this section.

(2) A winder or slope haulage used for carrying persons at the mine must have at least 2 independent braking systems, 1 acting directly on the drum.

(3) Each brake must be capable, at all times, of—

- (a) bringing the winder, or haulage, to rest safely; and
- (b) preventing drum movement, under balanced load conditions, when the maximum torque is applied in either direction.

(4) The brakes must be designed and installed to fail to safety.

(5) The winder must also have the following—

- (a) an automatic device to prevent the winder overwinding;
- (b) a device to prevent the descending conveyance from being landed at the lowest entrance to the shaft at a speed exceeding 3.5 m/s;
- (c) a device to indicate the position of each conveyance in the shaft;
- (d) for a manually controlled winder the speed of which is capable of exceeding 4 m/s—a rope speed indicator located on the winder where it can be read by the operator.

(6) The slope haulage must also have the following—

- (a) an automatic device to prevent over-travel;

- (b) a device to indicate the position of each rope hauled train of vehicles in the roadway;
- (c) for a manually controlled slope haulage the speed of which is capable of exceeding 2 m/s—a rope speed indicator located on the slope haulage where it can be read by the operator.

### **Controls and safety devices for conveyances**

**268.(1)** The site senior executive must ensure the headframe, or tower, of a shaft used for winding at the mine contains the following—

- (a) apparatus that is designed and installed so a conveyance or counterweight will stop safely if the conveyance is overwound;
- (b) safety devices that are designed and installed so a conveyance or counterweight that has been brought to rest, or detached from the winding rope, is prevented from falling down the shaft;
- (c) a way of egress to enable persons to safely leave an overwound conveyance.

**(2)** The site senior executive must ensure the shaft contains guides for each conveyance in the shaft if there is a possibility of uncontrolled contact between—

- (a) the conveyances; or
- (b) a conveyance and equipment installed in the shaft; or
- (c) a conveyance and the shaft side.

**(3)** The site senior executive must ensure each winder has—

- (a) if the conveyance has doors—a device preventing the conveyance moving when the doors are not closed correctly; and
- (b) suspension equipment capable of withstanding stall conditions, or a hook, capable of detaching the ascending conveyance from the rope, if the conveyance overwinds.

### **Fire control for winders and slope haulages**

**269.** The site senior executive must ensure each winder and slope haulage

that is not under direct supervision at the mine has suitable automatically operated fire extinguishers for extinguishing fire in the plant's engine room.

*Subdivision 2—Further provisions about design and installation for friction winders*

**Safety devices**

**270.(1)** The site senior executive must ensure each friction winding system at the mine has a device that causes each of the following to happen before the conveyance, counterweight or rope attachment reaches a permanent obstruction to its passage in the shaft—

- (a) the power to be cut off from the winder; and
- (b) the brakes to be automatically applied to bring the winding drum or sheave to rest.

**(2)** The site senior executive must also ensure—

- (a) each winder has a way of automatically synchronising the conveyance's position indicator and automatic safety devices with the conveyance's position; and
- (b) any synchronising adjustment is done only while the brakes are applied and the winder is stationary.

**Speed**

**271.(1)** The site senior executive must ensure the speed of a friction winder used at the mine does not exceed the following—

- (a) for raising or lowering persons—16 m/s;
- (b) for raising or lowering material—18 m/s;
- (c) for raising or lowering heavy machinery that causes the rope or ropes to have a safety factor of less than 6—3 m/s.

**(2)** Subsection (1) does not apply if appropriate controls have been established at the mine, following a risk assessment, to achieve an acceptable level of risk in the winding operation.

**Brakes**

**272.(1)** The site senior executive must ensure the brakes on a friction winder used at the mine—

- (a) when applied automatically, are not likely to cause the winding rope to slip on the driving sheave; and
- (b) apply automatically when the power to the winder fails; and
- (c) for a manually controlled winder—are also capable of being applied manually by the winder operator.

**(2)** The site senior executive must also ensure the brakes apply automatically and prevent the winder's operation if the brake linings become worn to an extent that affects the brakes' safe operation.

***Subdivision 3—Operating, maintaining and testing winders, slope haulages and hoists***

**Operating requirements for winders, slope haulages and hoists**

**273.(1)** The site senior executive must ensure—

- (a) the supplier of a winder, slope haulage or hoist for use at the mine is given sufficient details of the operating requirements of the plant to allow the supplier and installer to select and install appropriate plant; and
- (b) the plant is tested before being put into operation to verify it meets the operating requirements; and
- (c) a record is kept of—
  - (i) the details given to the supplier and installer; and
  - (ii) the test results.

**(2)** If the plant is intended to be used in excess of the operating requirements, the site senior executive must ensure a design check is carried out and any necessary modification is completed before the plant is used in excess of the operating requirements.



**Risk assessment and controls for winders, slope haulages and hoists**

**274.** An underground mine's safety and health management system must provide for carrying out a risk assessment, and establishing and implementing controls, for the installation, operation, maintenance and testing of winders, slope haulages and hoists.

**Operating manually operated winder, slope haulage and hoist equipment**

**275.(1)** The site senior executive for a mine at which manually operated winder, slope haulage or hoist equipment is used, must ensure the mine has an appropriate number of coal mine workers who have the recognised competencies to operate the equipment.

**(2)** A person must not operate manually operated winder, slope haulage or hoist equipment at the mine unless the person has the recognised competencies for operating the equipment and is appointed to operate the equipment.

**Signals code**

**276.** If an underground mine uses signals for communicating with a plant operator, the mine's safety and health management system must provide for the following—

- (a) a signals code;
- (b) a copy of the code to be posted—
  - (i) in the operator's view; and
  - (ii) at each other place where it is appropriate for persons to contact the operator by using the code;
- (c) a copy of the code posted at a place mentioned in paragraph (b)(ii) to be easily accessible by each coal mine worker at the mine;
- (d) each person who may need to use the code to be aware of it and where copies of it are posted.

### ***Subdivision 4—Winder and slope haulage ropes***

#### **Certificates for winder and slope haulage ropes**

**277.(1)** The site senior executive must ensure a rope is not used for winder or slope haulage at the mine unless the mine has the rope manufacturer's certificate stating the following about the rope—

- (a) its date of manufacture;
- (b) its tensile strength, diameter, length and mass;
- (c) the class of steel used in its construction.

**(2)** The site senior executive must ensure a rope is not used for winding or slope haulage at the mine unless the rope's tensile strength has been tested by a nationally accredited testing station.

**(3)** The site senior executive must ensure, for a rope other than a friction winder rope—

- (a) a sample of at least 2 m is cut off the end of the rope during recapping and sent to a nationally accredited testing station for testing its tensile strength; and
- (b) a certificate stating the tensile strength is obtained from the testing station.

**(4)** If the certificate states the tensile strength is less than 90% of the rope's tensile strength when new, the site senior executive must ensure the rope is not used for winding or slope haulage at the mine.

**(5)** The certificates mentioned in subsection (1) and (3)(b) are prescribed for section 68 of the Act<sup>36</sup> as a matter that must be included in the mine record.

#### **Using winder and slope haulage ropes**

**278.** The site senior executive must ensure the following—

- (a) only rope recommended by the manufacturer for winding and slope haulage is used at the mine;

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<sup>36</sup> Section 68 (Mine record) of the Act

- (b) a spliced rope is used only in an endless slope haulage system;
- (c) only rope dressing recommended by the manufacturer of the rope or dressing is used;
- (d) the condition of rope used is monitored;
- (e) the mine's safety and health management system provides for establishing criteria for deciding whether rope is no longer suitable for use;
- (f) unsuitable rope is discarded.

### **Safety factors for winder and slope haulage ropes**

**279.(1)** The site senior executive must ensure each rope used at the mine has at least the following safety factor—

- (a) for a slope haulage rope—8;
- (b) for a winder rope, other than a friction winder rope—
  - (i) used for winding persons in a shaft in which persons, materials or minerals may be wound—the safety factor worked out under the following formula—
$$7.5 - 0.001L$$
where “**L**” is the depth of the wind measured in metres; or
  - (ii) used for winding materials or minerals in a shaft in which persons, materials or minerals may be wound—the safety factor worked out under the following formula—
$$5.5 - 0.0003L$$
where “**L**” is the depth of the wind measured in metres; or
  - (iii) used for winding machinery at less than 2 m/s in a shaft in which persons, materials or minerals may be wound—5; or
  - (iv) used for winding materials or minerals in a shaft in which only materials or minerals may be wound—4.5; or
- (c) for a friction winder rope used in a shaft in which persons, materials or minerals may be wound by a single rope—the safety

factor worked out under the following formula—

$$7.5 - 0.001L$$

where “L” is the depth of the wind measured in metres;

- (d) for a stage rope used in shaft sinking—6.

### **Attaching winder ropes to conveyance or counterweight**

**280.(1)** The site senior executive must ensure each winder rope on a multi-rope winder is attached at the conveyance or counterweight by a device that loads the ropes as uniformly as practicable.

(2) The site senior executive must also ensure that if the rope attachments are connected directly to the conveyance or counterweight, devices are provided to adjust rope length and indicate rope tension.

### **Safety and health management system**

**281.** An underground mine’s safety and health management system must provide for regular, non-destructive testing of winder or slope haulage ropes and establishing discard criteria for the ropes.

## **PART 9—MINE DESIGN**

### *Division 1—Mine plans*

#### **Plan of coal mine workings**

**282.(1)** This section applies to a plan mentioned in section 67 of the Act.

(2) The site senior executive for the mine must ensure the plan complies with this section.

(3) The scale of a hard copy plan of the mine’s underground mine workings must be 1:2 500.

(4) The information about the mine shown on the plan must include the

following—

- (a) the mine's boundaries;
- (b) the boundaries of the following—
  - (i) any road, railway, power line, reserve or easement on the surface that are within the mine's boundaries;
  - (ii) any creek, river, watercourse, lake, sea, dam or other possible inrush source on the surface within the mine's boundaries or on land adjacent to the mine;
- (c) the mine workings in the working seam;
- (d) the connections to the mine workings from other seams;
- (e) any known active or abandoned workings of adjoining coal mines in any seam;
- (f) the nature, location and dimensions, as accurately as they are known, of any metallic, radioactive or other potentially harmful material left in any borehole intersecting or lying within a working seam;
- (g) the location of all boreholes, drifts and shafts from the surface that intersect a working seam;
- (h) the boundaries of the following known features that could influence the design and safety of the mine—
  - (i) sills overlying the mine workings;
  - (ii) faults, dykes and other geological structures;
- (i) the location of any artificial structures on the surface within the mine's boundaries;
- (j) the contours of the reduced levels of the mine workings floor at intervals, of not more than 5 m, as are necessary to show potential hazards at the mine;
- (k) each survey control station plotted at its location showing the control station's identification number and reduced level.

**(5)** The locations mentioned in subsection (4)(g) may be shown by a numbering system if—

- (a) the information mentioned in the subsection can not be

conveniently recorded on the plan; and

- (b) details of at least the depth of the boreholes, drifts and shafts are kept in a separate record at the mine.

(6) If the mine has more than 1 working seam, the site senior executive must ensure at least 1 set of plans kept at the mine is drawn on transparencies so the plans for the separate seams can be overlaid to show the relative locations of the workings in each seam.

### **Plan of surface land**

**283.(1)** The site senior executive must ensure a plan of the mine's surface land complies with this section.

(2) The scale of a hard copy of the plan must be 1:2 500.

(3) The information about the mine shown on the plan must include—

- (a) the information mentioned in section 282(4)(a), (b), (g) and (i); and
- (b) the contours of the reduced levels of the surface of the land plotted at intervals of not more than 5 m.

(4) The locations mentioned in section 282(4)(g) may be shown by a numbering system if—

- (a) the information mentioned in the subsection can not be conveniently recorded on the plan; and
- (b) details of at least the depth of the boreholes, drifts and shafts are kept in a separate record at the mine.

(5) The site senior executive must ensure at least 1 copy of the plan kept at the mine is drawn on a transparency so the plan can be overlaid on the plan of underground mine workings.

### **Plan of surface facilities**

**284.(1)** The site senior executive must ensure the mine has a plan of its surface facilities showing the following—

- (a) the location of each—
  - (i) entry to the mine workings; and

- (ii) ventilation fan installation;
  - (b) each access road to the mine surface infrastructure;
  - (c) each surface installation, administration building and other infrastructure.
- (2) The site senior executive must ensure a copy of the plan is given to each of the following—
- (a) the chief inspector;
  - (b) the accredited corporation with which the mine has a mines rescue agreement, at the corporation's nearest office;
  - (c) the officer in charge of the nearest police station.

### **Fire fighting and mine rescue plan**

**285.(1)** The site senior executive must ensure the mine has a fire fighting and mine rescue plan, complying with this section, for each of its working seams.

- (2) At least 1 hard copy of the plan must be—
- (a) at a scale of 1:2 500; and
  - (b) displayed in a location where the plan is readily observable by each underground mine worker at the mine.
- (3) The information shown on the plan must include the following—
- (a) the extent of the mine workings and connections to the surface or workings in other seams;
  - (b) the location of the following—
    - (i) water reticulation lines in the mine together with hydrant and valve sites;
    - (ii) fire stations and depots;
    - (iii) ventilation control devices;
    - (iv) atmospheric monitoring sites, stations and sampling lines;
    - (v) communication lines and telephones;
    - (vi) gas drainage ranges and drainage boreholes;

- (vii) stored pressure vessels;
- (c) the location and type of refuges;
- (d) the location and contents of caches of self-rescuers;
- (e) the direction of the ventilating air currents;
- (f) primary escapeways.

(4) The plan must also include a longitudinal section along each extraction panel and main trunk panel showing the relationship between the underground mine workings and the surface.

(5) The plan must be amended to ensure its accuracy as soon as practicable, but not later than 1 month, after a change happens in any of the things mentioned in subsection (3).

(6) If the mine has more than 1 working seam, at least 1 copy of the plan kept at the mine for each seam must be drawn on a transparency so the plans for the separate seams can be overlaid to show the relative locations of the workings in the seams.

### *Division 2—Establishing and identifying explosion risk zones*

#### **Risk assessment**

**286.** The site senior executive must ensure a risk assessment is carried out to identify the location and type of each ERZ at the mine.

#### **ERZO**

**287.(1)** An underground mine, or any part of it, where the general body concentration of methane is known to be, or is identified by a risk assessment as likely to be, greater than 2%, is an ERZO.

(2) To remove any doubt, it is declared that, if the general body concentration of methane in a part of the mine that is an ERZ1 or NERZ becomes greater than 2%, the part becomes an ERZO.



**ERZ1**

**288.(1)** An underground mine, or any part of it, where the general body concentration of methane is known to range, or is shown by a risk assessment as likely to range, from 0.5% to 2% is an ERZ1.

**(2)** Also, each of the following places is an ERZ1—

- (a) a workplace where coal or other material is being mined, other than by brushing in an outbye location;
- (b) a place where the ventilation does not meet the requirements for ventilation mentioned in section 343 or 344;<sup>37</sup>
- (c) a place where connections, or repairs, to a methane drainage pipeline are being carried out;
- (d) a place where holes are being drilled underground in the coal seam or adjacent strata for exploration or seam drainage;
- (e) a place, in a panel, other than a longwall panel that is being extracted, inbye the panel's last completed cut-through;
- (f) a goaf area;
- (g) each place on the return air side of a place mentioned in paragraphs (a) to (f), unless the place is an ERZ0 under section 287;
- (h) the part of a single entry drive with exhaust ventilation inbye the last fixed ventilation ducting in the drive.

**(3)** Subsection (2)(a) does not apply to a workplace that is a shaft or roadway driven—

- (a) from the surface in material other than coal; or
- (b) between seams that are predominantly driven in material other than coal.

**(4)** In this section—

**“brushing”** means removing a layer of material from the floor, roof or side of a heading or cut-through.

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<sup>37</sup> Section 343 (Ventilation system must provide for general body concentrations for particular contaminants and gases) or 344 (Other things for which ventilation system must provide)

**NERZ**

**289.(1)** An underground mine, or any part of it, where the general body concentration of methane is known to be, or is identified by a risk assessment as likely to be, less than 0.5% is a negligible explosion risk zone (a “**NERZ**”).

(2) Without limiting subsection (1), a part of the mine submerged by water is a NERZ.

(3) A NERZ may be divided into sub-zones to enable discrimination to be applied to tripping of the electricity supply to electrical circuits caused when gas detectors detect a general body concentration of methane of 0.5%.

(4) Each sub-zone mentioned in subsection (3) is a NERZ.

(5) Nothing in this section prevents the underground mine manager from classifying a NERZ at the mine as an ERZ0 or ERZ1.

(6) If the underground mine manager makes a classification under subsection (5), the NERZ is taken, while the classification is in force, to be an ERZ of the type stated in the classification.

**Signposting of ERZ boundaries**

**290.(1)** Subsection (2) applies if a person or machine can physically pass through a boundary between—

- (a) a NERZ and an ERZ1; or
- (b) an ERZ1 and an ERZ0.

(2) The underground mine manager must ensure the actual location of the boundary is signposted in each intake airway and machine access leading into—

- (a) for a boundary mentioned in subsection (1)(a)—the ERZ1; or
- (b) for a boundary mentioned in subsection (1)(b)—the ERZ0.

(3) A signpost need not be changed if—

- (a) a temporary change in conditions results in a temporary change in the boundary location; and

*Example of 'temporary change in conditions' for paragraph (a)—*

A major goaf fall causing a sudden temporary flush of methane to change an ERZ1 to an ERZ0 or a NERZ to an ERZ1.

- (b) appropriate precautions are taken to ensure control of persons and machines entering an ERZ affected by the change.

### **Plan of ERZ boundaries**

**291.(1)** If an underground mine's ERZ boundaries are signposted under section 290(2), the underground mine manager must ensure a plan showing the boundaries is displayed at the surface of the mine.

*Example of way boundaries may be shown for subsection (1)—*

By coloured pins.

**(2)** The underground mine manager must ensure the plan is updated at the end of each shift to reflect any changes in the boundary locations required to be signposted under section 290.

### ***Division 3—Precautions against intrushes***

#### **Data about potential intrushes**

**292.** If underground mine workings may be affected by an intrush, the site senior executive must ensure the following matters are investigated and details of them kept at the mine—

- (a) the location and nature of the intrush source;
- (b) the nature and thickness of the strata, measured in any plane, separating the intrush source from the workings that may be affected;
- (c) the presence of any faults, dykes or boreholes in the separating strata;
- (d) the anticipated accuracy of the details mentioned in paragraphs (a) to (c);
- (e) any other relevant data.

**Risk assessment**

**293.(1)** This section applies if there is a risk of inrush, including, for example, from cyclonic weather conditions, flood water or a breached dam, at an underground mine.

(2) The site senior executive must ensure a risk assessment is carried out to see whether the mine's method of working and precautions adopted in the workings reduces the risk to acceptable levels.

(3) If the method, or precautions, are subsequently revised, the site senior executive must ensure a further risk assessment is carried out.

**Standard operating procedure**

**294.(1)** An underground mine must have a standard operating procedure for the method of working, and precautions to be adopted, in mine workings where an inrush source exists.

(2) The standard operating procedure must be—

- (a) updated as often as changes are made in the method or precautions; and
- (b) displayed on—
  - (i) a notice board situated at the surface of the mine and accessible by the coal mine workers; and
  - (ii) a notice board situated underground in each area of the workings where the inrush source exists.

**Preventing inrushes through boreholes**

**295.(1)** The site senior executive must ensure each borehole to, through or from a coal seam at the mine is sealed off in a way that prevents an inrush happening through the borehole if—

- (a) the borehole is drilled after the commencement of this section; and
- (b) the inrush could happen if—
  - (i) the surface around the borehole collar flooded; or
  - (ii) the borehole intersected an inrush source.

(2) The site senior executive must also ensure precautions to prevent an inrush through a borehole at an underground mine are taken in mine workings approaching the borehole if—

- (a) it is suspected that the borehole exists and is one through which an inrush may happen; and
- (b) the borehole can not be accurately located by survey or any other way.

### *Division 4—Escapeways and refuges*

#### **Escapeways**

**296.(1)** The site senior executive must ensure the mine has at least 2 trafficable entrances (“**escapeways**”) from the surface that are separated in a way that prevents any reasonably foreseeable event happening in 1 of the escapeways affecting the ability of persons to escape through the other escapeway.

(2) The site senior executive must ensure each ERZ1 at the mine where a person works has 2 escapeways leading to the surface or a refuge.

(3) Subsection (2) does not apply to an ERZ1—

- (a) where an inspection is being carried out under the mine’s safety and health management system and no one else is working; or
- (b) in a single entry drive or shaft that is being sunk.

#### **Headings for intake air**

**297.** The site senior executive must ensure each group of main roads developed after the commencement of this section at the mine includes at least 2 headings for intake air.

#### **Primary escapeways**

**298.(1)** The site senior executive must ensure—

- (a) at least 1 of the escapeways at the mine mentioned in section 296(1) is—

- (i) an intake airway; and
  - (ii) designated as the primary escapeway; and
  - (iii) separated, as far as practicable, from all other roadways by a separation stopping that is antistatic, fire resistant and of substantial construction providing for minimal leakage; and
  - (iv) as far as practicable, free from the risk of fire; and
- (b) fire fighting equipment is located on, or near, any equipment installed in the primary escapeway.

(2) For mine workings developed after June 2001, the site senior executive must ensure a roadway designated as a primary escapeway is trafficable by mechanised equipment, unless the workings are being driven as either single or 2 heading developments.

### **Standard operating procedure**

**299.** An underground mine's safety and health management system must provide for the safety of persons when only 1 escapeway from the mine is available for use.

## **PART 10—MINING OPERATIONS**

### ***Division 1—Coal dust explosion prevention and control***

#### **General**

**300.(1)** An underground mine's safety and health management system must provide for the following—

- (a) minimising the risk of coal dust explosion;
- (b) suppressing coal dust explosion and limiting its propagation to other parts of the mine.

(2) The system must include provision for the following—

- (a) limiting coal dust generation, including its generation by mining machines, coal crushers and coal conveyors and at conveyor transfer points;
- (b) suppressing, collecting and removing airborne coal dust;
- (c) limiting coal dust accumulation on roadway and other surfaces in mine roadways;
- (d) removing excessive coal dust accumulations on roadway and other surfaces in mine roadways.

(3) The mine must have a standard operating procedure for the following—

- (a) calculating—
  - (i) the rate of coal dust accumulation on roadway surfaces; and
  - (ii) the stonedust application rate necessary to prevent coal dust explosion;
- (b) regularly inspecting, sampling and analysing roadway dust layers, including laboratory analysis for incombustible material content;
- (c) suppressing coal dust explosion, including, for example, by applying stonedust or another explosion inhibitor.

(4) The procedure must provide for the dust sampling and analysis mentioned in subsection (3)(b) to be carried out at least—

- (a) for a spot sample of dust mentioned in section 301(1)(a) or (b)—weekly; or
- (b) for a strip sample of dust mentioned in section 301(1)(a), (b), (c) or (d)—monthly; or
- (c) for a strip sample of dust mentioned in section 301(1)(e)—every third month.

(5) The procedure must also provide for the analysis of each sample mentioned in subsection (4)(b) or (c) to be carried out in a laboratory.

### **Incombustible material content for mine roadway dust**

**301.(1)** The underground mine manager must ensure the content of incombustible material in roadway dust at the mine is kept at or above—

- (a) for dust in a panel roadway within 200 m outbye the last completed line of cut-throughs in the panel—85%; or
- (b) for dust in a 200 m section of panel roadway within 400 m of a longwall face—85%; or
- (c) for dust in a panel roadway within 200 m from the main roadway, if paragraphs (a) and (b) do not apply to the 200 m section of the roadway—80%; or
- (d) for dust in a return roadway not mentioned in paragraphs (a) to (c)—80%; or
- (e) for dust in an intake roadway not mentioned in paragraphs (a) to (d)—70%.

(2) The underground mine manager must also ensure—

- (a) each 50 m length of a roadway that is being driven at the mine is stonedusted, or treated with another coal dust explosion inhibitor immediately after the length is driven; and
- (b) each part of the roadway is stonedusted or treated with another coal dust explosion inhibitor within 24 hours after the part is driven.

(3) Subsections (1) and (2) do not apply to dust in a roadway where there is a sufficient natural make of water associated with the mining operation to prevent a coal dust explosion.

(4) Also, subsection (1) does not apply to dust in a part of the mine mentioned in the subsection if—

- (a) an explosion inhibitor, including, for example, a chemical, is used as a coal dust suppressant in combination with stonedust in the part; and
- (b) a physical test, other than a laboratory test, of the combination carried out by a nationally accredited testing station has shown the combination to effectively suppress a coal dust explosion.

### **Action to be taken if incombustible material content not met**

**302.(1)** This section applies if an analysis of a dust sample from an underground mine shows the dust does not comply with the incombustible



material content for the dust stated in section 301(1).

(2) The underground mine manager must ensure—

- (a) the area from which the sample was taken is re-stonedusted within the following period after the underground mine manager receives the analysis result—
  - (i) for dust mentioned in section 301(1)(a), (b) or (c)—12 hours; or
  - (ii) for dust mentioned in section 301(1)(d) or (e)—7 days; and
- (b) a record is kept of the date and time when the area was re-stonedusted.

(3) The underground mine manager must ensure the ERZ controller for the area is given notice of the analysis result.

### **Record of roadway dust sampling**

**303.(1)** The underground mine manager must ensure a record is kept of the following for each roadway dust sample taken at the mine—

- (a) the date it was taken;
- (b) the location from which it was taken;
- (c) its incombustible material content;
- (d) the method used for analysing the sample.

(2) The underground mine manager must also ensure the sample's incombustible material content result is marked on a mine plan showing the boundaries of the mine ERZ locations as soon as practicable after the underground mine manager receives the result.

***Division 2—Inspections under safety and health management system******Subdivision 1—General*****Application of div 2**

**304.** This division applies only to an inspection carried out under an underground mine's safety and health management system.

**Appointment of persons to carry out inspections**

**305.(1)** The underground mine manager, in writing, may appoint a person to carry out an inspection at the mine only if the person is competent to carry it out.

**(2)** The appointment does not prevent the person having other duties at the mine that do not affect the person's ability to carry out the inspection in a thorough and timely way.

**Who may carry out inspections**

**306.** A person may carry out an inspection only if the person is—

- (a) appointed under section 305 to carry it out; or
- (b) for an inspection of an ERZ—the ERZ controller for the zone.

**ERZ controller must carry out regular periodic inspections of explosion risk zones**

**307.(1)** The ERZ controller for an ERZ must carry out a regular periodic inspection of the zone.

**(2)** Before carrying out a regular periodic inspection, the ERZ controller must—

- (a) read the record of the latest regular periodic inspection findings; and
- (b) acknowledge, in writing, on the record, that the ERZ controller has read the record.

**Duties of persons carrying out inspections—generally**

**308.(1)** A person carrying out an inspection must do the following—

- (a) if practicable, ensure anything that is found to be unsafe is made safe immediately;
- (b) if the thing can not be made safe immediately, take all practicable steps to ensure each person in any part of the mine whose safety may be threatened by the unsafe thing is given immediate notification of the unsafe thing;
- (c) erect a barrier to prevent persons from unknowingly entering a place where the unsafe thing exists;
- (d) if necessary, ensure—
  - (i) operations in any part of the mine where a person's safety is threatened by the unsafe thing are stopped; and
  - (ii) each person in the part of the mine is withdrawn to a safe location.

**(2)** As soon as practicable after carrying out the inspection, the person must ensure a record is made of the following—

- (a) any readings, required by the mine's safety and health management system, taken during the inspection;
- (b) the details of any unsafe thing found during the inspection;
- (c) any action taken to make the unsafe thing safe;
- (d) whether the unsafe thing was made safe.

**(3)** If an unsafe thing is not made safe by the end of the shift on which the inspection was made, the person must—

- (a) tell the person's immediate supervisor; and
- (b) give notice of the matter to the following persons—
  - (i) persons on the next shift, who may enter, travel or work in the part of the mine where the unsafe thing exists;
  - (ii) persons who are required to make similar inspections during the next shift.

***Subdivision 2—Procedure for carrying out inspections*****Safety and health management system**

**309.(1)** An underground mine's safety and health management system must provide for inspections, including, for example, the following—

- (a) subject to section 306, who may carry out the inspections;
- (b) the competencies required by a person to carry out an inspection;
- (c) the appointment of a sufficient number of persons to carry out inspections.

**(2)** The system must include a standard operating procedure for the inspections, having regard to the ways, and frequency, of carrying out inspections stated in a recognised standard for inspections.

**(3)** The procedure must include—

- (a) a risk assessment of the types of activities taking place, and the potential hazards, at the mine; and
- (b) provision for the following—
  - (i) the matters relating to safety and health to be covered in each inspection, including the matters stated in schedule 5<sup>38</sup> that are relevant to the inspection;
  - (ii) recording inspection findings;
  - (iii) taking action as a result of the inspection findings, including for example—
    - (A) making things safe;
    - (B) closing the entry to a dangerous part of the mine or removing persons from the part.

**(4)** The procedure must include a schedule of when inspections, including regular periodic inspections, must be carried out.

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<sup>38</sup> Schedule 5 (Matters to be covered in inspections)

**Notice of inspection result**

**310.(1)** Immediately after completing an inspection of an inspection district, the ERZ controller who carried out the inspection must ensure a notice of the inspection result is placed on a notice board located at the outbye boundary of the district.

**(2)** The notice must state the following—

- (a) the date and time of the inspection;
- (b) the date and time after which the inspection ceases to be effective;
- (c) whether or not the inspection district was found to be safe.

**(3)** This section does not apply—

- (a) in an emergency; or
- (b) to parts of an underground mine that have been sealed and are being re-entered by a mines rescue team.

**Action to be taken if inspection not carried out when required under a standard operating procedure**

**311.(1)** This section applies if, for any reason, an inspection of a part of an underground mine, or plant at the mine, is not carried out when required under a standard operating procedure for the inspection.

**(2)** Until the inspection is completed and the part of the mine, or plant, is found to be safe, the person carrying out the inspection must ensure—

- (a) for an inspection of part of the mine—the part is closed to access by persons; or
- (b) for an inspection of plant—the plant is not used.

**Inspection districts**

**312.(1)** This section applies to the part of an underground mine—

- (a) that a person may enter, travel or work in, whether or not the part is currently being used for work or travel; or
- (b) in which a hazardous activity is taking place.

**(2)** For carrying out regular periodic inspections of the part, the

underground mine manager must divide the part into districts (“**inspection districts**”) having regard to the following for each district—

- (a) the types of activities taking place and the hazards likely to be present;
- (b) its appropriate size, to allow sufficient time for it to be inspected adequately.

### **Inspection district boundaries**

**313.(1)** The underground mine manager must ensure the boundaries of each inspection district at the mine are defined in a way that they can be recognised easily by each coal mine worker at the mine.

**(2)** Without limiting subsection (1), the underground mine manager must ensure the boundaries are shown on—

- (a) a plan of the mine on which the inspection district is clearly marked; and
- (b) a notice board located at the outbye boundary of the district.

**(3)** The underground mine manager may define the boundaries of an inspection district differently for different shifts, or different days of the week, or both, having regard to the nature of the work being carried on in the district during the shift or on the day.

### **Notice of entry to inspection district**

**314.(1)** A person must not enter an inspection district without notifying the ERZ controller for each ERZ1 in the district.

**(2)** This section does not apply—

- (a) in an emergency; or
- (b) to parts of an underground mine that have been sealed and are being re-entered by a mines rescue team; or
- (c) to a person who is merely travelling through the district to access another part of the mine.

***Subdivision 3—Miscellaneous*****ERZ controller must be present during mining in ERZ1**

**315.(1)** The ERZ controller for an ERZ1 must be present in the zone whenever coal or stone is being mined, or strata control activities are being carried out, in it.

**(2)** Subsection (1) does not apply if the controller is—

- (a) in an adjacent ERZ0 for which the controller has been appointed; or
- (b) inspecting plant, in a NERZ, in the immediate vicinity of the ERZ1.

**Prohibition on entering uninspected part of mine**

**316.(1)** A person must not enter or remain in a part of an underground mine that has not been inspected and declared to be safe, unless the person is carrying out an inspection under the Act, including under this regulation.

**(2)** This section does not apply—

- (a) in an emergency; or
- (b) to a part of the mine that has been sealed and is being re-entered by a mines rescue team.

***Division 3—Second workings*****Risk assessment**

**317.(1)** The underground mine manager must ensure a risk assessment is carried out under this section to decide a safe method of extraction for second workings at the mine before the second workings start.

**(2)** The risk assessment must have regard to at least the following matters—

- (a) any surface features, artificial structures and water reserves that may create a hazard if disturbed by the workings;

- (b) any other workings located in close proximity above, below or adjacent to the proposed second workings, whether in the same or an adjacent mine;
- (c) the known geology affecting the intended workings;
- (d) the anticipated gas make;
- (e) the pillar stability;
- (f) the proposed method and sequence of coal extraction;
- (g) the proposed methods for the following—
  - (i) strata control and support;
  - (ii) ventilation;
  - (iii) controlling spontaneous combustion;
- (h) support methods necessary to control the edges of each goaf area in active workings;
- (i) the suitability of the plant, and its controls, used for the workings.

### **Standard operating procedure**

**318.(1)** An underground mine must have a standard operating procedure for carrying out second workings.

(2) The procedure must be based on the results of the risk assessment mentioned in section 317.

(3) The mine must have a separate procedure for each panel in the mine.

(4) However, if the hazards in each panel in a group of panels are the same, the mine may have a standard operating procedure for the group.

(5) The procedure must include provision for establishing—

- (a) methods for the following—
  - (i) coal extraction;
  - (ii) strata control and support;
  - (iii) ventilation;
  - (iv) controlling spontaneous combustion;



- (v) monitoring and recording extraction progress; and
- (b) the coal extraction sequence.

### **Changing standard operating procedure**

**319.(1)** This section applies to an underground mine if—

- (a) the conditions or hazards in a panel, or group of panels, in the mine changes significantly while coal is being extracted in the panel or group in second workings; or
- (b) it is proposed to significantly change a method for the workings established under section 318(5)(a).

**(2)** If subsection (1)(a) applies—

- (a) the underground mine manager must ensure a risk assessment for the workings is carried out as soon as practicable after the change happens; and
- (b) the standard operating procedure for carrying out the workings in the panel, or group of panels, must be reviewed and, based on the risk assessment, amended, if necessary.

**(3)** If subsection (1)(b) applies, before the change is implemented—

- (a) the underground mine manager must ensure a risk assessment is carried out for the proposed change; and
- (b) the standard operating procedure for carrying out the workings must be amended, if necessary, based on the risk assessment.

### **Notices to inspector**

**320.(1)** Before second workings are started at an underground mine, the site senior executive must give an inspector notice about the proposed second workings.

**(2)** Before the mine's standard operating procedure for second workings is significantly changed, the site senior executive must give an inspector a copy of—

- (a) the report on the risk assessment carried out under section 319(3)(a) for the change; and

(b) the proposed standard operating procedure.

(3) Despite subsection (2), the site senior executive may change the standard operating procedure before giving an inspector the documents mentioned in the subsection if—

- (a) the procedure needs to be changed immediately because of prevailing mining conditions; and
- (b) immediately after the change is made, the underground mine manager notifies an inspector about the circumstances and details of the change; and
- (c) as soon as practicable after the change is made, the site senior executive gives an inspector the documents mentioned in the subsection.

(4) In this section—

“**significant change**”, for a standard operating procedure for second workings, means a change that is likely to significantly affect the ventilation, stability, subsidence or extraction sequence of the workings.

#### *Division 4—Strata control*

### **Stability of mine workings**

**321.(1)** An underground mine’s safety and health management system must provide for ensuring the stability of mine workings.

(2) The system must provide for the following—

- (a) investigating factors affecting the stability of mine workings;
- (b) keeping a record at the mine of the data used and calculations made in deciding—
  - (i) pillar strength and stability; and
  - (ii) strata support requirements.

### **Preventing dangerous subsidence**

**322.(1)** This section applies if coal extraction at an underground mine is likely to cause subsidence resulting in an unacceptable level of risk.

**(2)** The site senior executive must ensure—

- (a) the amount of coal extracted does not cause the subsidence; and
- (b) appropriate measures are taken to ensure the long term stability of the surface.

*Example of ‘appropriate measures’—*

Leaving blocks of the coal seam, of sufficient dimensions, unmined.

### **Strata support for workings**

**323.(1)** This section applies if an investigation of factors affecting the stability of mine workings shows strata support is required for a working place to prevent danger to a person from otherwise uncontrolled movement of the roof, ribs or floor of the working place.

**(2)** The underground mine manager must ensure—

- (a) suitable strata support methods are designed and implemented for the working place; and
- (b) plans showing the support arrangement in the working place are displayed on notice boards mentioned in section 178(1).<sup>39</sup>

**(3)** The mine must have a standard operating procedure for installing the strata support.

**(4)** A person must not enter the working place unless the strata support has been installed or the person is supervising, or engaged in, its installation.

**(5)** If strata instability in the working place creates an unacceptable level of risk to a person installing the strata support, the underground mine manager must ensure sufficient temporary support is installed to achieve an acceptable level of risk.

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<sup>39</sup> Section 178 (Communication by notices and plans)

**Monitoring strata support**

**324.** An underground mine's safety and health management system must provide for—

- (a) monitoring the effectiveness and integrity of strata support in each place used by a person for normal work or travel; and
- (b) maintaining the integrity of the strata support, including, for example, by replacing defective supports.

***Division 5—Routine and emergency sealing*****Types of seals for particular circumstances and parts of mines**

**325.(1)** The underground mine manager must ensure a seal installed, other than at the surface, at the mine is of a following type—<sup>40</sup>

- (a) if the level of naturally occurring flammable gas at the mine is insufficient to reach the lower explosive limit for the gas under any circumstances—type B;
- (b) if persons remain underground when an explosive atmosphere exists and there is a possibility of spontaneous combustion or incendive spark or other ignition source—type D;
- (c) for an underground mine, or part of an underground mine, not mentioned in paragraph (a) or (b)—type C.

**(2)** The underground mine manager must ensure a type E seal is used for sealing the entrance to the mine mentioned in section 156(2)(b).<sup>41</sup>

**Notice of intention to seal mine**

**326.(1)** At least 30 days before an underground mine, or part of it, is sealed, the underground mine manager must give notice of the proposed sealing to—

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<sup>40</sup> See schedule 4 (Ventilation control devices and design criteria) for the design criteria for each type.

<sup>41</sup> Section 156 (Entry air locks and emergency mine sealing)

- (a) an inspector; and
- (b) an industry, or site, safety and health representative for the mine.

(2) The notice must state the following—

- (a) the proposed sealing procedure;
- (b) the proposed location of the seals in the mine;
- (c) the area of the mine proposed to be sealed;
- (d) any evidence of ignition sources being present in the area to be sealed;
- (e) predictions of the rates at which methane and other gases will accumulate in the sealed area;
- (f) the gas monitoring procedures to be carried out during and after the sealing.

(3) Despite subsection (1), the underground mine manager may, with the inspector's written agreement, give the notice to the inspector less than 30 days before the proposed sealing.

(4) This section does not apply to sealing the mine in an emergency.

### **Sealing underground mine**

**327.(1)** The underground mine manager must ensure the mine, or part of it, is not sealed unless—

- (a) the underground mine manager has given notice of the proposed sealing under section 326; and
- (b) the inspector to whom the notice was given has given the underground mine manager a written acknowledgment that the inspector is satisfied with the details of the proposed sealing given in the notice.

(2) The underground mine manager must ensure the mine, or part, is sealed in the way acknowledged by the inspector.

(3) This section does not apply to sealing the mine in an emergency.

**Changing sealing method**

**328.(1)** This section applies if it becomes impracticable for sealing an underground mine, or part of it, to be carried out in the way proposed for the sealing in a notice given under section 326.

**(2)** The underground mine manager must—

- (a) take reasonable steps to notify an inspector and an industry, or site, safety and health representative of the changes from the proposed way; and
- (b) if the notification is given orally, confirm it in writing as soon as practicable.

**Emergency sealing**

**329.(1)** This section applies if an underground mine, or part of it, needs to be sealed in an emergency.

**(2)** The underground mine manager must—

- (a) immediately notify an inspector and an industry, or site, safety and health representative of the proposed sealing; and
- (b) ensure the sealing is carried out in a way that achieves an acceptable level of risk; and
- (c) as soon as practicable after the sealing, give an inspector notice about the sealing.

**(3)** If the notification mentioned in subsection (2)(a) is given orally, the underground mine manager must confirm it in writing as soon as practicable.

**(4)** The notice mentioned in subsection (2)(c) must state the following details about the sealing—

- (a) the sealing procedure;
- (b) the location of the seals in the mine;
- (c) the area of the mine sealed;
- (d) any evidence of ignition sources being present in the area sealed;
- (e) predictions of the rates at which methane and other gases will

accumulate in the sealed area;

- (f) the gas monitoring procedures carried out during and after the sealing.

### **Evacuating mine after sealing**

**330.** A person must not, without an inspector's written consent, enter or remain in an underground mine after the mine, or part of it, has been sealed.

## ***Division 6—Construction work***

### **Risk assessment**

**331.** Before construction work is started at an underground mine, the site senior executive must ensure a risk assessment is carried out for—

- (a) the installation, operation, maintenance and testing of the equipment to be used during the construction; and
- (b) the work involved in the construction.

### **Excavations, dumping stations, chutes and bins**

**332.(1)** The site senior executive must ensure each entrance to an excavation, dumping station, chute or bin at the mine is guarded and barricaded if there is a danger of a person falling into, or entering, it unknowingly.

**(2)** The site senior executive must ensure each excavation, dumping station, chute or bin at the mine is designed to prevent dangerous accumulations of gases forming in it.

### **Controlling flooding in excavations**

**333.** If there is a risk from flooding to persons working in an excavation at an underground mine, the site senior executive must ensure—

- (a) the mine has suitable pumping equipment installed in an appropriate place to control the risk; and

- (b) the pumping equipment activates an alarm system in the event of pump failure.

### **Preventing explosive atmospheres around operating machines**

**334.** The underground mine manager must ensure that, while a blind shaft, raise or tunnel borer is operating in a shaft or tunnel—

- (a) the methane content in the shaft or tunnel does not exceed 2%; or
- (b) the shaft or tunnel has an inert atmosphere.

### **Standard operating procedure**

**335.(1)** An underground mine must have a standard operating procedure for carrying out construction work.

**(2)** The procedure must include provision for operating, maintaining and testing equipment used in construction work.

### **Notice of proposed sinking of drift or shaft**

**336.** Before a drift or shaft is sunk at an underground mine, the site senior executive must give notice of the proposed sinking to an inspector for the region in which the mine is situated.

### **Evacuation and escape from drifts and shafts**

**337.(1)** The site senior executive must ensure suitable equipment is provided in each drift and shaft, including a staple shaft, being sunk at the mine to enable each person working in the drift or shaft excavation to be evacuated to a place of safety if the person is injured or an emergency happens.

**(2)** The site senior executive must ensure each shaft being sunk has a way for persons to escape from the floor to the sinking stage.

### **Travelling in a kibble**

**338.(1)** A person must not ride in a shaft on the lip of a kibble.



(2) A person being transported in a kibble must stand fully inside the kibble.

### **Drilling in butts**

**339.** A person must not drill into the butt of another drill hole in which explosives have been placed.

## **PART 11—VENTILATION**

### *Division 1—Ventilation officer*

#### **Ventilation officer may hold another appointment**

**340.** A person appointed as the ventilation officer may hold another appointment at the mine only if the person's functions under the other appointment do not prevent the person from carrying out the person's functions as ventilation officer.

#### **Functions of ventilation officer**

**341.** A ventilation officer has the following functions—

- (a) to ensure adequate ventilation of the mine;
- (b) to ensure the quality of the mine air is measured and recorded under section 362;<sup>42</sup>
- (c) to take charge of any ventilation system change in the mine by giving directions, or by being present, when the change is happening;
- (d) to ensure all ventilation control devices at the mine are properly constructed and maintained.

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<sup>42</sup> Section 362 (Air distribution)

**Reports by ventilation officer**

**342.(1)** A ventilation officer must prepare—

- (a) a ventilation report about the mine ventilation system; and
- (b) if the ventilation system is changed—a report detailing the system before and after the change.

**(2)** The report must be prepared—

- (a) for a ventilation report—each month; or
- (b) for a report mentioned in subsection (1)(b)—as soon as practicable after the change.

**(3)** Each report—

- (a) must be signed, or countersigned, by—
  - (i) the underground mine manager; or
  - (ii) the person responsible for the control and management of underground activities when the manager is not in attendance at the mine; and
- (b) is prescribed for section 68 of the Act<sup>43</sup> as a matter that must be included in the mine record.

***Division 2—Ventilation system*****Ventilation system must provide for general body concentrations for particular contaminants and gases**

**343.(1)** The ventilation officer must ensure the mine's ventilation system is designed, implemented and monitored to ensure the atmosphere in each part of the mine has a general body concentration that is—

- (a) for carbon dioxide or a contaminant mentioned in schedule 6,<sup>44</sup> column 1—as low as reasonably achievable and within the limits to which a person may be exposed to the contaminant under

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<sup>43</sup> Section 68 (Mine record) of the Act

<sup>44</sup> Schedule 6 (General body concentrations for atmospheric contaminants)

section 359;<sup>45</sup> or

- (b) for oxygen—at least 19%; or
- (c) for methane—not more than 2.5%.

(2) The ventilation officer must ensure a record is kept of the results of monitoring for atmospheric contaminants in each place where a person is exposed to a contaminant.

(3) This section does not apply to a part of the mine exempted under section 345.

### **Other things for which ventilation system must provide**

**344.(1)** The ventilation officer must ensure the mine's ventilation system provides for the following—

- (a) minimising, within acceptable limits, the layering and accumulation of noxious and flammable gas in each place where controlled ventilation is required under paragraph (b);
- (b) controlled ventilation—
  - (i) in each place used by a person for normal work or travel, other than a place where an inspection mentioned in section 307<sup>46</sup> is being carried out and no one else is working; and
  - (ii) in each standing working place that is on the intake side of a working place; and
  - (iii) in each working place in an ERZ1;
- (c) at least—
  - (i) 1 entry to each working part of the mine to conduct intake air to the part; and
  - (ii) 1 entry to each working part of the mine to conduct return air from the part;

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<sup>45</sup> Section 359 (Exposure to contaminated atmosphere)

<sup>46</sup> Section 307 (ERZ controller must carry out regular periodic inspections of explosion risk zones)

- (d) monitoring and recording the concentration of atmospheric contaminants in each place mentioned in paragraph (b).

(2) Subsection (1)(a) does not apply when there is a sudden, temporary increase in the general body concentration of methane to more than 2.5% and the ventilation system is capable of quickly reducing the methane concentration to not more than 2.5%.

*Example for subsection (2)—*

A roof fall in a goaf causes an inrush creating a high and temporary concentration of methane.

(3) The controlled ventilation for a working place mentioned in subsection (1)(b)(ii) or (iii) must provide for a ventilation current of an average velocity of at least 0.3 m/s, measured across the cross-sectional area of the roadway in the working place.

(4) Subsection (1)(c)(ii) does not apply to—

- (a) a shaft being sunk; or
- (b) a drift or individual roadway being driven and for which it would be impracticable to provide a separate return roadway.

*Example for paragraph (b)—*

A single entry drive or longwall face heading.

(5) This section does not apply to a part of the mine exempted under section 345.

### **Parts of mine exempted from ventilation requirement**

**345.** The following parts of an underground mine are exempted for sections 343 and 344—

- (a) a part sealed off from the rest of the mine workings by a type B, C, or D seal;
- (b) a goaf area, or abandoned workings in which normal work is not being carried out;
- (c) a roadway that persons are prohibited and prevented from using for normal work or travel;
- (d) a place where persons are using self-contained breathing apparatus to carry out work other than normal work, unless the

work is associated with a routine operation in outburst prone conditions.

***Division 3—Safety and health management system and standard operating procedures for ventilation***

**Safety and health management system**

**346.(1)** An underground mine's safety and health management system must provide ways of—

- (a) preventing intake air from travelling across the face of a permanent seal at the mine; and
- (b) minimising the risks of inrush and leakage, into intake airways, of atmospheric contaminants from goaf areas and abandoned or sealed workings.

**(2)** Subsection (1)(a) does not apply if the system provides ways of ensuring the following—

- (a) leakage through the seal is minimised and damage to the seal is prevented;
- (b) the seal is a type C seal;
- (c) a monitoring device is installed in each intake airway on the return side of the seals over which the intake air passes to detect the intake airway's general body concentration of—
  - (i) oxygen; and
  - (ii) carbon dioxide, if it is present behind the seal in a general body concentration greater than 3%; and
  - (iii) any other gas that is present behind the seal in a quantity and concentration that is likely to create a risk if it enters the intake airway adjacent to the seal;
- (d) for longwall workings—the monitoring device mentioned in paragraph (c) is positioned at the intersection of the longwall face and the intake airway;
- (e) the monitoring system for paragraph (c) triggers an alarm to warn

each person who may be affected if a gas mentioned in the paragraph is present in a predetermined concentration.

### **Ventilating workplaces**

**347.(1)** An underground mine must have a standard operating procedure for ventilating workplaces.

(2) Without limiting subsection (1), the procedure must state the maximum distances from the mine face for locating ventilation ducting and brattice lines.

### **Evacuating mine**

**348.** An underground mine must have a standard operating procedure for evacuating persons to safe locations if an alarm mentioned in section 346(2)(e) is triggered.

### **Taking action if ventilation system fails**

**349.(1)** An underground mine must have a standard operating procedure for the action to be taken to ensure the safety of persons if the mine ventilation system fails totally, or partly, for more than 30 consecutive minutes.

(2) The procedure must include provision for the following—

- (a) the ERZ controller for the part of the mine affected by the stoppage to inspect the part to ensure it is safe to—
  - (i) continue work in the part; or
  - (ii) if electric power to the part has been cut off, restore the power;
- (b) stopping or restarting work, and shutting off or restoring electric power, if necessary, in the part of the mine affected by the failure.

### ***Division 4—Ventilation control devices***

#### **Installing ventilation control devices**

**350.(1)** The ventilation officer must ensure a ventilation control device mentioned in schedule 4,<sup>47</sup> column 1, and installed at the mine meets the design criteria stated in schedule 4, column 2, opposite the type of device.

**(2)** The ventilation officer must also ensure not more than 2 temporary stoppings are installed in a line of ventilation stoppings separating an intake airway from a return airway immediately adjacent to the last line of cut-throughs in the panel.

**(3)** Subsection (2) does not apply if a separate panel is to be developed and the mine has a plan for installing permanent ventilation control devices instead of the temporary stoppings.

#### **Interfering with ventilation control devices**

**351.(1)** The underground mine manager must—

- (a) designate particular ventilation control devices at the mine as devices that must not be interfered with; and
- (b) ensure each person at the mine is notified of the designation.

**(2)** A person must not interfere with a ventilation control device designated under subsection (1).

**(3)** Subsection (2) does not apply if, before interfering with the device, the person—

- (a) is authorised by the underground mine manager or ventilation officer to carry out the interference; and
- (b) gives notification of the proposed interference to a person appointed under section 60(8) or (9) of the Act<sup>48</sup> for the part of the mine likely to be affected by the interference.

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<sup>47</sup> Schedule 4 (Ventilation control devices and design criteria)

<sup>48</sup> Section 60 (Additional requirements for management of underground mines) of the Act

(4) In this section—  
“interfere with” includes adjust and change.

### **Standard operating procedure**

**352.** An underground mine must have a standard operating procedure for constructing, installing, using and maintaining the mine’s ventilation control devices.

## *Division 5—Fans*

### **Using fans underground**

**353.(1)** This section applies only to an underground mine that uses fans underground.

(2) The mine’s safety and health management system must provide for using the fans underground.

(3) The mine must have a standard operating procedure for using the following fans if the fans are used in the mine’s ventilation system—

- (a) auxiliary fans, including auxiliary fans used for degassing places where methane has accumulated;
- (b) booster fans;
- (c) scrubber fans;
- (d) a combination of fans mentioned in paragraphs (a) to (c).

(4) In developing a standard operating procedure for subsection (3)(a), the site senior executive must have regard to ways of automatically tripping compressed air powered auxiliary fans if the main ventilating system or another auxiliary ventilation system fails.

(5) If different types of a fan are used at the mine, the mine must have a separate standard operating procedure for each type.



**Provision for fans in principal hazard management plan for ventilation**

**354.** The mine's principal hazard management plan for ventilation must include—

- (a) for a main exhausting fan—
  - (i) the ventilating air's general body concentration of methane that must not be exceeded before a methane detector fitted to the fan automatically activates a visible alarm; and
  - (ii) the action to be taken if the alarm is activated; and
- (b) if a booster fan is used at the mine—
  - (i) procedures for using the fan; and
  - (ii) the action to be taken if a methane detector fitted to the fan activates a visible alarm.

**Auxiliary fans**

**355.(1)** The ventilation officer must ensure an auxiliary fan used at the mine is located and operated in a way that prevents air recirculating through the fan.

**(2)** The ventilation officer must ensure the minimum quantity of air flowing in any panel at the mine is the sum of—

- (a) the open circuit capacity of each auxiliary fan in operation in the panel; and
- (b) 30% of the open circuit capacity of the largest auxiliary fan in operation in the panel.

**(3)** The site senior executive must ensure an auxiliary fan used at the mine is capable of switching off automatically if the main ventilation system fails totally.

**Scrubber fans**

**356.** The ventilation officer must ensure a scrubber fan used at an underground mine is located and operated in a way that prevents the uncontrolled recirculation of air through the fan.

**Monitoring fans**

**357.(1)** The site senior executive must ensure each fan installed on the surface, and each booster fan installed below ground, at the mine as part of its ventilation system, is fitted with the following—

- (a) an equipment condition monitoring device;
- (b) a device capable of continuously monitoring and recording the fan's static pressure.

**(2)** The site senior executive must ensure each device mentioned in subsection (1) operates in a way that, if it detects a significant departure from the fan's normal operating parameters, it—

- (a) first, triggers a visible alarm; and
- (b) second, trips the electricity supply to the fan; and
- (c) records the date and time of the action mentioned in paragraphs (a) and (b).

**(3)** The site senior executive must ensure the part of the device displaying the results of the monitoring is located where it is easily accessible by a person whose task includes checking the condition of the fan.

**Dealing with underground auxiliary and booster fans**

**358.(1)** A person must not deal with a fan ventilating a place below ground at an underground mine unless the person—

- (a) is the ERZ controller for the place; or
- (b) is authorised by the ventilation officer to deal with the fan; or
- (c) has been directed to deal with the fan by the ERZ controller for the place or a person authorised to deal with the fan under paragraph (b).

**(2)** Before a person starts or stops a fan ventilating a place below ground at an underground mine, the person must ensure the following persons are given notification of the proposed starting or stopping—

- (a) the ERZ controller for the place;
- (b) each person likely to be affected by the proposed starting or stopping.

(3) In this section—  
“deal”, with a fan, means start, stop, remove or alter the fan.

*Division 6—Controlling exposure to atmospheric contaminants*

**Exposure to atmospheric contaminants other than carbon dioxide**

**359.(1)** Subject to subsection (2), the ventilation officer must ensure a person is not exposed to an atmosphere at the mine containing a contaminant—

- (a) mentioned in schedule 6,<sup>49</sup> column 1; and
- (b) having a general body concentration exceeding the applicable long term exposure limit concentration.

(2) Subject to subsection (3), the person may be exposed to the atmosphere for not more than 15 consecutive minutes if—

- (a) in the 15 minutes—
  - (i) for a contaminant for which a maximum exposure limit concentration is stated in schedule 6, column 3, opposite the name of the contaminant—the concentration does not exceed the applicable maximum exposure limit concentration; or
  - (ii) for a contaminant for which a maximum exposure limit concentration is not stated in schedule 6, column 3, opposite the name of the contaminant—the applicable maximum exposure limit concentration is safe; and
- (b) the exposure happens—
  - (i) at not less than 1 hour intervals; and
  - (ii) not more than 4 times in 8 hours; and
- (c) the mine has a standard operating procedure for working in the contaminated air to ensure the maximum exposure limit concentration is not exceeded.

(3) A person may be exposed to an atmosphere containing a brief surge

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<sup>49</sup> Schedule 6 (General body concentrations for atmospheric contaminants)

of hydrogen sulphide causing a maximum exposure limit concentration exceeding the concentration stated in schedule 6, column 3, opposite the name of the contaminant if the person is—

- (a) wearing personal breathing protective equipment; and
- (b) working under a standard operating procedure for working in air contaminated by hydrogen sulphide.

(4) This section does not apply to a person who is wearing self-contained breathing apparatus in an emergency or for a mines rescue purpose.

(5) In this section—

**“applicable long term exposure limit concentration”**, for a contaminant, means—

- (a) for a person working not more than 8 hours a day or not more than 40 hours a week—the long term exposure limit concentration stated in schedule 6, column 2, opposite the name of the contaminant; or
- (b) for a person working more than 8 hours a day or more than 40 hours a week—the long term exposure limit concentration stated in schedule 6, column 2, opposite the name of the contaminant, as adjusted having regard to a recognised standard for adjusting exposure limits for extended working hours.

**“applicable maximum exposure limit concentration”**, for a contaminant, means—

- (a) for a person working not more than 8 hours a day or not more than 40 hours a week—the maximum exposure limit concentration stated in schedule 6, column 3, opposite the name of the contaminant; or
- (b) for a person working more than 8 hours a day or more than 40 hours a week—the maximum exposure limit concentration stated in schedule 6, column 3, opposite the name of the contaminant, as adjusted having regard to a recognised standard for adjusting exposure limits for extended working hours.

**Exposure to carbon dioxide**

**360.(1)** Subject to subsection (2), the ventilation officer must ensure a person is not exposed to an atmosphere at the mine containing a general body concentration of carbon dioxide exceeding 12 500 ppm.

(2) A person may be exposed to an atmosphere containing a general body concentration of carbon dioxide of not more than 30 000 ppm if—

- (a) a continual personal monitoring method is used to calculate the time weighted average concentration of carbon dioxide to which the person is exposed; and
- (b) the time weighted average concentration is not more than—
  - (i) if the person works not more than 8 hours a day and not more than 40 hours a week—12 500 ppm, calculated on the basis of not more than 8 hours a day and not more than 40 hours a week; of
  - (ii) if the person works more than 8 hours a day and more than 40 hours a week—12 500 ppm, as adjusted having regard to a recognised standard for adjusting exposure limits for extended working hours.

(3) This section does not apply to a person who is wearing self-contained breathing apparatus in an emergency or for a mines rescue purpose.

**Prohibition on working in poor quality air**

**361.(1)** A person must not knowingly work or travel in a place at an underground mine where the general body concentration of an atmospheric contaminant exceeds—

- (a) for an atmospheric contaminant mentioned in schedule 6, column 1—the concentration stated in schedule 6, column 2 or 3, opposite the name of the contaminant; or
- (b) for carbon dioxide—12 500 ppm.

(2) Subsection (1)(a) does not apply if the person is working or travelling in the place—

- (a) in an emergency; or
- (b) in the circumstances mentioned in section 359(2) or (3).

(3) Subsection (1)(b) does not apply if the person is working or travelling in the place—

- (a) in an emergency; or
- (b) in the circumstances mentioned in section 360(2) or (3).

### *Division 7—Monitoring atmosphere*

#### **Air distribution**

**362.(1)** The ventilation officer must ensure the mine's air quality and flow rate is measured and recorded under this section as often as is necessary, having regard to the circumstances at the mine, but at least once each month.

(2) The air quality and flow rate must be measured at the following places—

- (a) each main intake airway at a point as near as practicable to the surface;
- (b) each intake airway on the return side of the seals over which the intake air passes;
- (c) each main return airway at a point as near as practicable to the surface;
- (d) each return airway of each ventilation split at a point as near as practicable to the surface;
- (e) the return airway from each unsealed waste, idle workings and goaf areas;
- (f) each return airway at a main upcast fan;
- (g) any other place the ventilation officer considers necessary;
- (h) any other place required by an inspector.

(3) The air flow rate must be calculated and recorded for each of the following—

- (a) the combined intake airways;
- (b) the combined return airways;

(c) each ventilation split.

(4) In addition, at least once in each working shift at the mine, the air flow rate must be measured and recorded for each of the mine's working faces.

### **Barometric pressure**

**363.(1)** The ventilation officer must ensure the barometric pressure at the surface of the mine is continuously measured and recorded.

(2) The record must be kept at the mine in a location that is easily accessible by each person responsible for inspecting the mine for gas accumulation and the effectiveness of the ventilation system.

(3) Each person appointed under section 60(8) or (9) of the Act<sup>50</sup> and carrying out an inspection underground must check the record for the barometric pressure trend and the current barometric pressure reading.

### **Effective temperature at coal face**

**364.** The ventilation officer must ensure the wet and dry bulb temperature, and the resultant effective temperature, of the atmosphere at each coal face where mining operations are in progress at the mine are measured and recorded as often as is necessary, having regard to the circumstances at the mine.

### **Measurements following changes**

**365.(1)** This section applies if, because an underground mine's ventilation system is changed, air flow rates in a place mentioned in section 362(2) may be affected substantially.

(2) The ventilation officer must ensure the air flow rate for the place is measured and recorded under section 362 immediately after the change.

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<sup>50</sup> Section 60 (Additional requirements for management of underground mines) of the Act

**Division 8—Miscellaneous****Withdrawal of persons in case of danger**

**366.(1)** For section 273 of the Act,<sup>51</sup> a part of an underground mine required to be ventilated under section 344(1)(b) that has a general body concentration of methane of at least 2.5% is taken to be dangerous.

**(2)** For section 273(6) of the Act, and without limiting the subsection—

- (a) mines rescue trained persons are taken to be competent persons; and
- (b) appropriate precautions are taken to have been taken if the persons are working under mines rescue procedures developed by an accredited corporation.

**PART 12—WORKING ENVIRONMENT****Division 1—Contraband****Contraband**

**367.(1)** The following materials and objects are classified as contraband—

- (a) tobacco used for smoking, cigarettes and cigars;
- (b) any device used for smoking tobacco or drugs;
- (c) any device, including a match, that may be used to strike, or could create, an open flame, arc or spark;
- (d) any article that is a prohibited article for the surface of the mine.

**(2)** Despite subsection (1), the following are not contraband—

- (a) a device used to strike an open flame, arc or spark when it is used

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<sup>51</sup> Section 273 (Withdrawal of persons in case of danger) of the Act



for hot work under part 8, division 5;<sup>52</sup>

- (b) electrical equipment complying with part 5, division 2;<sup>53</sup>
- (c) mechanical equipment complying with part 8.<sup>54</sup>

### **Standard operating procedure**

**368.(1)** An underground mine's safety and health management system must provide for a procedure (the "**search procedure**"), complying with this section, for searching a person to ensure the person has not taken, or does not take, contraband underground at the mine.

**(2)** The search procedure must include provision for the following—

- (a) routine and random searches;
- (b) the frequency, time and place for searches;
- (c) the method of conducting searches, including a requirement that the search be conducted by a person of the same sex as the person being searched;
- (d) ensuring that in time, each of the mine's coal mine workers carrying out tasks underground will be searched.

**(3)** In establishing the search procedure, the site senior executive must comply with section 10,<sup>55</sup> other than section 10(1)(a), as if—

- (a) a reference in the section to a standard operating procedure were a reference to the search procedure; and
- (b) a reference in the section to the coal mine workers with whom the site senior executive consulted were a reference to representatives of the mine's coal mine workers.

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<sup>52</sup> Part 8, division 5 (Hot work)

<sup>53</sup> Part 5, division 2 (Suitability of electrical equipment and installations)

<sup>54</sup> Part 8 (Mechanical)

<sup>55</sup> Section 10 (Developing standard operating procedures)

## *Division 2—Heat stress management*

### **Managing risk from heat**

**369.(1)** An underground mine’s safety and health management system must provide for ensuring the health of persons in places at the mine in which—

- (a) the wet bulb temperature exceeds 27°C; and
- (b) persons work or travel.

**(2)** In developing the part of the safety and health management system mentioned in subsection (1) (the “**heat stress management provisions**”), the site senior executive must—

- (a) have regard to any criteria stated in a recognised standard for managing heat; and
- (b) comply with section 10, other than section 10(1)(a) and (d)(ii)(C), as if a reference in the section to a standard operating procedure were a reference to the heat stress management provisions.

**(3)** A person must not work in a place at the mine where the effective temperature exceeds 29.4°C unless the person is—

- (a) carrying out the work in an escape or emergency; or
- (b) engaged in work designed to reduce the effective temperature; or
- (c) a mines rescue member carrying out training or emergency response under procedures developed by an accredited corporation; or
- (d) wearing self-contained breathing apparatus and undertaking an emergency response under a standard operating procedure for the mine.

### **Calculating effective temperature**

**370.** An underground mine’s safety and health management system must provide for the way of calculating the effective temperature of the atmosphere at the mine.

## CHAPTER 5—MISCELLANEOUS

### **Prescribed tasks—Act, s 76(3)(a)**

**371.** The tasks stated in schedule 7 are prescribed for section 76(3)(a) of the Act.

### **Fees**

**372.** The fees payable to the board of examiners under the Act are in schedule 8.

### **Repeal**

**373.** The *Coal Mining (Industry Employees' Health Scheme) Regulation 1993* is repealed.

**SCHEDULE 1****TYPES OF SERIOUS ACCIDENTS AND HIGH  
POTENTIAL INCIDENTS FOR SECTION 198 OF THE  
ACT**

section 13

1. An unplanned ignition of gas, dust, or a combination of gas and dust.
2. A fire.
3. The spontaneous combustion of coal or other material in an underground mine.
4. A ventilation failure causing a dangerous accumulation of methane or other gas.
5. An inrush.
6. A coal or rock outburst causing a hazard.
7. Damage to, or failure of, haulage equipment used to transport a person in a shaft or slope.
8. An unplanned movement of, or failure to stop, a vehicle, if the movement or failure causes a hazard.
9. The failure in service of explosion protection of explosion protected equipment.
10. An electric shock to a person.
11. A failure of electrical equipment or an electrical installation, if the failure causes a hazard.
12. An unplanned ignition or explosion of a blasting agent or explosive.
13. A major failure of strata control.
14. The entrapment of a person.
15. The exposure of a person to a hazardous substance.

## SCHEDULE 1 (continued)

- 16.** An event causing the withdrawal of a person from the mine or part of the mine.
- 17.** An unforeseen hazard requiring a review of the mine's safety and health management system.
- 18.** The unplanned immersion of a person in liquid.
- 19.** An abnormal circumstances declaration.
- 20.** A major unplanned movement of earth or coal.
- 21.** A major structural failure of equipment, if the failure causes a hazard.

**SCHEDULE 2****TYPES OF SERIOUS ACCIDENTS AND HIGH  
POTENTIAL INCIDENTS FOR SECTIONS 200(1) AND  
201(1) OF THE ACT**

section 14

**PART 1—TYPES FOR SECTION 200(1)**

1. An incident causing the death of, or a serious bodily injury to, a person.
2. An unplanned ignition of gas, dust, or a combination of gas and dust.
3. Damage to, or failure of, haulage equipment used to transport a person in a shaft or slope, if the damage or failure causes a hazard.
4. The failure in service of explosion protection of explosion protected equipment.
5. A failure of electrical equipment or an electrical installation causing an electric shock to a person.
6. An unplanned ignition or explosion of a blasting agent or explosive.
7. A major structural failure of equipment, if the failure causes a hazard.

**PART 2—TYPES FOR SECTION 201(1)**

1. An unplanned ignition of gas, dust, or a combination of gas and dust.
2. The spontaneous combustion of coal or other material in an underground mine.
3. An inrush.

## SCHEDULE 2 (continued)

4. The failure in service of explosion protection of explosion protected equipment.
5. An electric shock to a person.
6. An unplanned ignition or explosion of a blasting agent or explosive.
7. A major failure of strata control.
8. The entrapment of a person.
9. An abnormal circumstances declaration.
10. A major structural failure of equipment.

**SCHEDULE 3****CHAPTER 4 PROVISIONS APPLYING WHILE  
ABNORMAL CIRCUMSTANCES DECLARATION IS  
IN FORCE**

section 124

1. Part 2—
  - section 152.
2. Part 4—
  - divisions 1 and 2, other than sections 162 and 166
  - division 3, other than sections 169 and 171.
3. Part 6.
4. Part 7—
  - sections 227 and 228.
5. Part 8—
  - sections 259 to 261
  - division 5.
6. Part 9—
  - sections 286 to 289, 292 and 294.
7. Part 10—
  - sections 307 to 311, 316, 321, 323 and 324.
8. Part 11—
  - sections 344(1)(a) and (b)(iii), (2) and (3), 349 and 366.
9. Part 12.



## SCHEDULE 4

### VENTILATION CONTROL DEVICES AND DESIGN CRITERIA

section 350(1) and schedule 9, definition “type”

<b>Column 1</b>	<b>Column 2</b>
<b>Ventilation control device</b>	<b>Design criteria</b>
brattice line or temporary stopping	antistatic and fire resistant
mine entry airlock	capable of withstanding an overpressure of 70 kPa while it is open
separation stopping for a primary escapeway	antistatic, fire resistant and of substantial construction providing for minimal leakage
stopping, overcast or regulator installed as part of the main ventilation system	capable of withstanding an overpressure of 35 kPa
stopping, overcast or regulator installed as part of the ventilation system for a panel	capable of withstanding an overpressure of 14 kPa during the life of the panel
type B seal	capable of withstanding an overpressure of 35 kPa
type C seal	capable of withstanding an overpressure of 140 kPa
type D seal	capable of withstanding an overpressure of 345 kPa

## SCHEDULE 4 (continued)

type E seal	capable of withstanding an overpressure of 70 kPa
ventilation ducting	antistatic and fire resistant

**SCHEDULE 5****MATTERS TO BE COVERED IN INSPECTIONS**

section 309(3)(b)(i)

1. The presence of flammable gases or contaminants in the atmosphere.
2. The adequacy of the following—
  - (a) ventilation;
  - (b) coal dust inertisation;
  - (c) emergency, first aid and fire fighting equipment.
3. The condition of the following—
  - (a) ventilation control devices;
  - (b) auxiliary fans;
  - (c) surfaces over which persons may travel or vehicles may be driven;
  - (d) the support for the roof and sides of the workings.
4. The stability of roadways in the workings.
5. Indications of heating or fire.
6. Abnormal water inflow.
7. Plant malfunction.
8. The proper functioning of communication and monitoring systems.
9. Excessive accumulation of mud, water or coal.
10. Thermal environmental conditions.

## SCHEDULE 6

### GENERAL BODY CONCENTRATIONS FOR ATMOSPHERIC CONTAMINANTS

sections 343(1)(a), 359 and 361(1)

<b>Column 1</b>	<b>Column 2</b>	<b>Column 3</b>
<b>Contaminant</b>	<b>Long term exposure limit concentration</b>	<b>Maximum exposure limit concentration</b>
acetaldehyde	100 ppm	150 ppm
carbon monoxide	30 ppm	—
formaldehyde	1.2 ppm	2.5 ppm
hydrogen sulphide	10 ppm	15 ppm
mineral oil mist	5 mg/m <sup>3</sup>	—
nitric oxide	25 ppm	—
nitrogen dioxide	3 ppm	5 ppm
nitrous oxide	25 ppm	—
sulphur dioxide	2 ppm	5 ppm
vegetable oil mist	10 mg/m <sup>3</sup>	—
welding fumes	5 mg/m <sup>3</sup>	—

**SCHEDULE 7****PRESCRIBED TASKS FOR SECTION 76(3)(a) OF THE  
ACT**

section 371

1. Carrying out electrical activities and electrical work.
2. Certifying mine survey plans.
3. Controlling and managing the following—
  - (a) electrical engineering activities;
  - (b) mechanical engineering activities.
4. Operating the following—
  - (a) explosive powered tools;
  - (b) winders and slope haulages.
5. Repairing, overhauling and maintaining the following—
  - (a) explosion protected electrical, or mechanical, equipment;
  - (b) electrical equipment on underground mobile plant.
6. The tasks of the following persons at a surface coal mine—
  - (a) a person charging and firing explosives;
  - (b) a person handling explosives.
7. The tasks of the following persons at an underground coal mine—
  - (a) a shotfirer;
  - (b) an assistant shotfirer;
  - (c) a fire officer;
  - (d) a ventilation officer.
8. Training and assessing mine workers.

## SCHEDULE 8

### BOARD OF EXAMINERS' FEES

section 372

	\$
1. Application for assessment for a first class, or second class, certificate of competency .....	25.00
2. Application for assessment for a deputy's, or open-cut examiner's, certificate of competency .....	15.00
3. Issuing a duplicate certificate of competency to replace a lost, destroyed or defaced certificate .....	5.00

## SCHEDULE 9

### DICTIONARY

section 3

**“abnormal circumstances declaration”** means a declaration made under section 120.

**“AHD”** means the Australian height datum adopted by the National Mapping Council of Australia for referencing a level or height back to a standard base level.

**“aided escape”** means an escape process in which persons on the surface of a coal mine help workers escape from underground at the mine.

**“AS”** means Australian Standard published by Standards Australia.

**“AS 1939”** means AS 1939 ‘Degrees of protection provided by enclosures for electrical equipment (IP Code)’.

**“automatic methane detector”** means a methane detector that automatically activates a visible alarm and trips the electricity supply when the methane concentration in the atmosphere reaches a particular level.

**“auxiliary fan”** means a fan, other than a cooling fan for equipment or scrubber fan, used underground to direct ventilation in a part of an underground mine.

**“booster fan”** means an auxiliary fan installed in a way that the total ventilation flow where it is installed passes through it.

**“certified”**, for a thing or type of thing, means certified by a nationally accredited testing station for the thing or type.

**“circuit protection device”** includes an earth leakage, earth fault, short circuit and overcurrent device.

**“construction work”** means work connected with driving or excavating drifts, shafts, dump stations, bins, or other large excavations, not normally associated with underground coal mining operations.

## SCHEDULE 9 (continued)

**“cut-through”** means a tunnel driven in a coal seam to connect adjacent headings.

**“danger tag”** means a tag warning of a particular danger.

**“direct contact”** means in contact with an exposed conductor or an exposed part of an electrical article with bare hands or another part of the body or by a conductive tool.

**“electrical activity”**—

1. “Electrical activity” means the following—
  - (a) installing, maintaining, repairing, testing or disconnecting electrical equipment or an electrical installation for coal mining operations;
  - (b) operating the electrical equipment or electrical installation.
2. “Electrical activity” does not include the following—
  - (a) operational switching;
  - (b) connecting or disconnecting electrical equipment using a jacking type restrained connector with pilot wire protection underground;
  - (c) simple push button testing of earth leakage breakers or similar tasks.

**“electrical engineering manager”** means a person appointed to control and manage a coal mine’s electrical engineering activities under—

- (a) for an underground mine—section 60(10) of the Act; or
- (b) for a surface mine—section 111.

**“electrical equipment”** means an item used for generating, converting, transmitting, distributing or using electrical energy.

**“electrical work”**—

1. “Electrical work” means installing, repairing, testing or disconnecting electrical components of electrical equipment and electrical installations.
2. “Electrical work” does not include connecting or disconnecting



## SCHEDULE 9 (continued)

electrical equipment using a jacking type restrained connector with pilot wire protection underground.

**“employer”** means an employer of a coal mine worker.

**“ERZ”** means an explosion risk zone.

**“ERZO”** see section 287.

**“ERZ1”** see section 288.

**“ERZ controller”**, for an ERZ, means a person appointed for the ERZ under section 60(9) of the Act.

**“escapeway”** see section 296(1).

**“explosion protection category Ex ia”** means explosion protection category Ex ia under AS 2380.7 ‘Electrical equipment for explosive atmospheres—Explosion-protection techniques—Intrinsic safety i’, section 1.6.2.

**“explosion protection category Ex s”** means explosion protection category Ex s under AS 1826 ‘Electrical equipment for explosive atmospheres—Special protection—Type of protection s’, section 4.3.

**“explosion risk zone”** means 1 of the following—

- (a) an ERZO;
- (b) an ERZ1;
- (c) a NERZ.

**“exposed”**, to a substance, means exposed to the risk of absorbing the substance—

- (a) by ingestion or inhalation; or
- (b) through the skin or mucous membrane.

**“extra low voltage”** means a voltage of less than 50 V a.c. or 120 V d.c.

**“fixed”**, for equipment, means installed in a particular place and not normally moved.

**“gas alarm level”**, for a mine, means a value or ratio for gas stated as a gas

## SCHEDULE 9 (continued)

alarm level in the mine's principal hazard management plan under section 224.

**“GDA”** means Geocentric Datum of Australia which is a system of earth-centred datum used for mapping.

**“general body concentration”**, for gas in an underground mine or part of an underground mine, means the concentration of gas measured at a representative location in the mine or part.

**“heading”** means a tunnel driven in a coal seam in the main direction of the mining operation.

**“health assessment”** means an assessment of a person's health under section 46.

**“health assessment report”** means a report, in the approved form, about a health assessment, or medical examination, of a person.

**“high voltage”** means voltage greater than 1 200 V a.c. or 1 500 d.c.

**“highwall mining”** means mining conducted by remote controlled equipment that drives an underground excavation from the surface into a coal seam.

**“hot work”** means welding, soldering, heating, cutting, grinding or vulcanising in which the surface temperature of the work, or a tool used for the work, is likely to exceed 150°C.

**“identify”**, for a hazard, means establish the presence of the hazard by a risk assessment process.

**“indirect contact”** means in contact with an exposed conductor or an exposed part of an electrical article by an insulated tool or insulating equipment.

**“inrush”** means an unplanned or uncontrolled flood of liquid, gas or material that has the potential to create a hazard.

**“inspection district”**, for an underground mine, see section 312(2).

**“issue”**, an explosive, does not include merely deliver the explosive.

## SCHEDULE 9 (continued)

**“lockout earth fault current protection device”** means a device that prevents a circuit being energised if the insulation resistance to earth of 1 or more of the circuit’s conductors is below a predetermined value.

**“low voltage”** means voltage of at least 50 V a.c. or 120 V d.c., but not more than 1 200 V a.c. or 1 500 d.c.

**“mine road”**, for a surface mine, means a road at a coal mine used for transporting coal, waste material, or rehabilitation material in the mining operations.

**“mines rescue person”** means a person who is—

- (a) trained under a mines rescue training program mentioned in section 232(a)(ii) of the Act; and
- (b) carrying out mines rescue services under a mines rescue agreement.

**“mining activities”**, for a surface mine, means activities that relate to the winning of coal and include the following—

- (a) preparing for the extraction of overburden or coal;
- (b) preparing and firing shots;
- (c) loading and transporting overburden or coal;
- (d) dumping overburden on spoil heaps.

**“mobile plant”** means plant capable of being moved under its own power.

*Examples—*

Draglines, shovels, excavators and trucks.

**“NERZ”** see section 289.

**“NOHSC”** means the National Occupational Health and Safety Commission under the *National Occupational Health and Safety Commission Act 1985* (Cwlth).

**“nominated medical adviser”** see section 45.

**“normal travel”** means travel carried out other than in an emergency.

**“normal work”** means work carried out other than in an emergency.

## SCHEDULE 9 (continued)

**“open-cut examiner”** means a person appointed as an open-cut examiner under section 59 of the Act.

**“personal protective equipment”** includes clothing, equipment or a device designed to protect a person from harm.

*Example of ‘personal protective equipment’—*

A seat belt, fall arresting device or buoyancy device.

**“portable”**, for equipment, means equipment intended to be held in the hand during use or which is capable of being carried by 1 person.

**“prospective touch voltage”** means the highest voltage a person is liable to be exposed to if the person contacts simultaneously accessible parts in an electrical installation during an electrical fault.

**“recognised competency”**, for a position or task, means a competency recognised by the council as appropriate for the position or task.

**“regular periodic inspection”**, for an underground mine, means a regular periodic inspection stated in a standard operating procedure for the mine under section 309(4).

**“road”** includes a ramp.

**“roadway”** includes a cut-through between intake roadways and a connection between intake and return airways.

**“safety berm”**, is a mound running along the edge of a road to reduce the risk of a vehicle running off the edge.

**“scrubber fan”** means a fan—

- (a) mounted as part of a machine to control dust around the machine; and
- (b) used to assist in ventilating a working place at an underground mine.

**“second workings”**, for an underground mine, means the second phase of mining after roadways for developing the part of the mine in which the second workings are carried out have been driven.

## SCHEDULE 9 (continued)

“**serious bodily injury**” means a bodily injury endangering, or likely to endanger, life or causing, or likely to cause, a permanent injury to health.

“**single entry drive**” means a drive longer than 350 m.

“**slope haulage**” means an engine for raising or lowering a conveyance on a slope.

“**training scheme**”, for a coal mine, means the training scheme established under the mine's safety and health management system.

“**transportable equipment**” means equipment transported or towed by other equipment and required to be moved to a new position between periods of operation.

*Examples—*

Lighting plant, crib huts, generators and pumps.

“**type**”, for a seal, means a type of seal mentioned in schedule 4, column 1, meeting the design criteria stated in schedule 4, column 2, opposite the type.

“**ventilation control device**” means a structure to control or direct ventilation flow.

“**visitor**” means a person other than a coal mine worker.

“**width**”, of a vehicle, is its measurement across its widest part excluding collapsible projecting parts.

*Example of ‘collapsible projecting part’—*

A light or mirror.

“**winder**” means a winding engine for raising or lowering a conveyance in a shaft.

“**zone**” means an explosion risk zone.

## ENDNOTES

1. Made by the Governor in Council on 15 March 2001.
2. Notified in the gazette on 16 March 2001.
3. Laid before the Legislative Assembly on . . .
4. The administering agency is the Department of Industrial Relations.