

**Reprint
as at 8 October 1999**



**Health and Safety in Employment
(Mining—Underground)
Regulations 1999
(SR 1999/331)**

Michael Hardie Boys, Governor-General

Order in Council

At Wellington this 4th day of October 1999

Present:

The Right Hon Wyatt Creech presiding in Council

Pursuant to section 21 of the Health and Safety in Employment Act 1992, His Excellency the Governor-General, acting by and with the advice and consent of the Executive Council, makes the following regulations.

Note

Changes authorised by section 17C of the Acts and Regulations Publication Act 1989 have been made in this reprint.

A general outline of these changes is set out in the notes at the end of this reprint, together with other explanatory material about this reprint.

These regulations are administered by the Department of Labour.

Contents

		Page
1	Title and commencement	4
2	Interpretation	4
3	Meaning of fresh air	9
4	Meaning of mine	10
5	Meaning of tunnel	10
6	Employers and employees in relation to operations	11
7	Relationship between Act and regulations	11

Part 1

Duties in relation to all mines and tunnels

8	Inspector to be notified of commencement, recommencement, installation, or cessation	12
9	Register of accidents and serious harm	13
10	Accident notification	13
11	Plans of mines and tunnels	13
12	Plans of abandoned mines and tunnels	14
13	Details to be included in plans	14
14	Operations record in relation to mines and tunnels	15
15	Record of employees underground	15
16	Examinations of mines and tunnels	16
17	Visits to solitary employees	16
18	Main airways to be separated	16
19	Barometer, hygrometer, and thermometer	16
20	Testing for flammable gas	17
21	Withdrawal of employees when high level of flammable gas present	17
22	Self-rescue units	18
23	Outlets for workings	18
24	Equipment for raising and lowering employees	19
25	Holes to be kept in advance of working places	19
26	Holing into old workings	19
27	Protection against inundation	20
28	Air quality and temperature	20
29	Measurement of air from fans	20
30	Ventilation fans	20
31	Auxiliary fans	21
32	Withdrawal of employees if mechanical ventilation device fails	22
33	Equipment not to be taken into mine or tunnel	22
34	Handling explosives and detonators	23

Part 2

Duties in relation to coal mines and gassy mines

Coal mines and gassy mines

35	Sparks or naked flames	23
36	Prevention of ignition or combustion	23
37	Reading of barometer, hygrometer, and thermometer	24
38	Testing for flammable gas	24
39	Monitoring of mining and tunnel boring machines	24

Gassy mines only

40	Ventilation	24
----	-------------	----

Part 3

Duties in relation to use of electricity in operations

All operations

41	Electrical systems	25
42	Earthing and other precautions	25
43	Conductors	26
44	Connections	26
45	Means of protection from excess current	26
46	Electrical equipment	26
47	Making electrical equipment safe	27
48	Work activities	27
49	Precautions for work on equipment already dead	27
50	Protective equipment	28
51	Work on or near bare live conductor	28
52	Switchgear for cutting off electricity	28
53	Oil-filled electrical equipment	28
54	Fire protection	29

Gassy mines only

55	Restriction on electrical equipment used in restricted zones	29
56	Restrictions on certain electrical equipment	30
57	Electrical equipment used occasionally	30
58	Disconnection of electricity	31
59	Remote control and electric interlock circuits	31

Part 4

Offences

60	Offences	32
----	----------	----

Regulations

1 Title and commencement

- (1) These regulations may be cited as the Health and Safety in Employment (Mining—Underground) Regulations 1999.
- (2) These regulations come into force on the 28th day after the date of their notification in the *Gazette*.

2 Interpretation

In these regulations, unless the context otherwise requires,—

Act means the Health and Safety in Employment Act 1992

acting manager means the employee designated for the purpose referred to in the Health and Safety in Employment (Mining Administration) Regulations 1996

cable means—

- (a) 1 length of single insulated conductor that may or may not have an overall protective covering; or
- (b) 2 or more lengths of single insulated conductor that are laid up together and may or may not have an overall protective covering

coal—

- (a) means anthracite, bituminous coal, lignite, oil shale, peat, and sub-bituminous coal; and
- (b) includes every other substance worked or normally worked with coal

coal mine—

- (a) means a place where a person works below ground for the purpose of—
 - (i) extracting coal from the earth; or
 - (ii) processing coal extracted from the earth at that place; and
- (b) includes a place in which coal so extracted or processed is washed, crushed, or screened

competent person means any person who has—

- (a) the relevant knowledge, experience, and skill to carry out a task required or permitted by these regulations to be carried out by a competent person; and
- (b) either—

- (i) a relevant qualification evidencing the person's possession of that knowledge, experience, and skill; or
- (ii) if the person is an employee, a certificate issued by the person's employer evidencing the person's possession of that knowledge, experience, and skill

conductor—

- (a) means material used or placed in position for the conveyance of electricity; but
- (b) does not include the wire of an electric fence

electrical equipment includes anything used, designed to be used, or installed for use, to conduct, control, convert, distribute, generate, measure, provide, rectify, store, transform, or transmit electrical energy

electrical system—

- (a) means an electrical system in which all the electrical equipment is, or is capable of being, electrically connected to a common source of electrical energy; and
- (b) includes the source and the equipment

employee has the meaning given to it by regulation 6(2)

employer has the meaning given to it by regulation 6(1)

explosive,—

- (a) until the commencement of section 150(1) of the Hazardous Substances and New Organisms Act 1996 in relation to the Explosives Act 1957, has the same meaning as it has in the Explosives Act 1957; and
- (b) on the commencement of section 150(1) of the Hazardous Substances and New Organisms Act 1996 in relation to the Explosives Act 1957, has the same meaning as it has in the Hazardous Substances and New Organisms Act 1996

free from flammable gas means that the percentage by volume of flammable gas in the general body of the air at the place of measurement does not exceed 0.25%

fresh air has the meaning given to it by regulation 3

gassy mine means—

- (a) a coal mine; or

- (b) a metalliferous mine; or
- (c) a tunnel—
in which tests on 3 successive days indicate the presence of flammable gas in an—
 - (d) area; or
 - (e) district; or
 - (f) main airway on the return side or exhaust side

geothermal fluid means any of the following that has been heated within the earth by natural phenomena to a temperature of 70°C or more:

- (a) steam;
- (b) water;
- (c) water vapour;
- (d) a mixture of all or any of them (and the mixture may include gases)

manager means the person appointed for the purpose under the Health and Safety in Employment (Mining Administration) Regulations 1996

metalliferous mine—

- (a) means a place where a person works below ground for the purpose of—
 - (i) extracting a mineral from the earth; or
 - (ii) processing a mineral extracted from the earth at that place; and
- (b) includes a place where a person works below ground for the purpose of—
 - (i) extracting a material, other than coal or a mineral, from the earth; or
 - (ii) processing material, other than coal or a mineral, extracted from the earth at that place; and
- (c) includes a place in which a mineral or material extracted or processed as described in paragraph (a) or paragraph (b) is—
 - (i) crushed or screened; or
 - (ii) extracted from any other mineral or material extracted or processed as described in paragraph (a) or paragraph (b)

mine has the meaning given to it by regulation 4

mineral—

- (a) means a mineral, mineral substance, metal, or precious stone; but
- (b) does not include clay, coal, gravel, limestone, sand, or stone

mobile electrical plant means—

- (a) self-propelled plant that is capable of moving while energised by a trailing cable; and
- (b) portable plant that is capable of being moved while energised by a trailing cable

operation—

- (a) means an operation in which a mine is worked or a tunnel is made; and
- (b) includes buildings, machinery, or works—
 - (i) at a place where a mine is worked or a tunnel is made; and
 - (ii) used for the purposes of the working of the mine or the making of the tunnel; and
- (c) includes, in relation to an operation in which a mine is worked,—
 - (i) an activity carried out in relation to the working of the mine; and
 - (ii) an activity required to open or close the workings in the mine; and
- (d) includes, in relation to an operation in which a tunnel is made,—
 - (i) an activity carried out in relation to the making of the tunnel; and
 - (ii) an activity required to open or close the works relating to the making of the tunnel; but
- (e) does not include an operation in which any of the following occurs:
 - (i) exploration, mining, or prospecting for geothermal fluids or minerals associated with geothermal fluids; or
 - (ii) exploration, mining, or prospecting for petroleum; or

- (iii) an activity on a pipeline used for transporting a geothermal fluid, mineral, or petroleum outside the boundary of the operation

petroleum—

(a) means—

- (i) a naturally occurring hydrocarbon (other than coal), whether in a gaseous, liquid, or solid state; or
 - (ii) a naturally occurring mixture of hydrocarbons (other than coal), whether in a gaseous, liquid, or solid state; or
 - (iii) a naturally occurring mixture of 1 or more hydrocarbons (other than coal), whether in a gaseous, liquid, or solid state, and 1 or more of carbon dioxide, helium, hydrogen sulphide, mercaptan, or nitrogen; and
- (b) includes petroleum, as defined in paragraph (a), that has been—
- (i) mined or otherwise recovered from its natural condition; or
 - (ii) mined or otherwise recovered from its natural condition and then returned to a natural reservoir for storage purposes in the same or an adjacent area

ppm means parts per million

restricted zone means—

- (a) all parts of a ventilation district in a gassy mine that are on the intake side and within 100 metres of—
 - (i) the most inbye completed line of crosscuts; or
 - (ii) a longwall or shortwall face; or
- (b) a part of a gassy mine in which flammable gas, whether or not normally present, is likely to occur in such a quantity as to be 2% by volume or more in the general body of air in the gassy mine; or
- (c) a part of a gassy mine in which electrical equipment is located and that has not been shown to be free from flammable gas; or
- (d) all of the return side of a gassy mine

shaft means an opening in a mine having an inclination above the horizontal of 15° or more—

- (a) through which employees or materials are transported; or
- (b) that is used as a main intake or outlet for ventilation

site office means a place at an operation for the time being designated by the manager or acting manager as the site office for that operation

switchgear means fittings for—

- (a) controlling the distribution of electricity; or
- (b) controlling or protecting electrical circuits and electrical equipment

trailing cable means a cable that is used or placed in position for the conveyance of electricity from an electrical system to mobile electrical plant

tunnel has the meaning given to it by regulation 5

work activity includes—

- (a) the maintenance, operation, and use of an electrical system; and
- (b) work carried out near an electrical system.

3 Meaning of fresh air

(1) A reference in these regulations to fresh air means that the air—

- (a) contains not less than 19% by volume of oxygen; and
- (b) contains not more than 1 ppm of aldehydes (as formaldehyde); and
- (c) shows a concentration of respirable quartz dust of not more than 0.2 milligrams per cubic metre on a long-term exposure; and
- (d) shows a concentration of respirable coal dust of not more than 3 milligrams per cubic metre on a long-term exposure; and
- (e) contains the following gases at the lowest practicable level and at no more than the following levels:

	Time-weighted average exposure (ppm)	Short-term exposure limit (ppm)
Carbon dioxide	5 000	30 000
Carbon monoxide	25	—
Hydrogen sulphide	10	15
Oxides of nitrogen	3	5
Sulphur dioxide	2	5

(2) In subclause (1),—

time-weighted average exposure is calculated as follows:

$$\frac{\text{Total exposure in day (concentration} \times \text{time)}}{8 \text{ hours}}$$

short-term exposure limit means the average exposure measured over any 15-minute period in the working day.

4 Meaning of mine

In these regulations, **mine** means—

- (a) a coal mine; or
- (b) a metalliferous mine.

5 Meaning of tunnel

(1) In these regulations, **tunnel**—

- (a) means a place where a person works,—
 - (i) with ground cover overhead, for the purpose of making an excavation intended to be greater than 15 metres long; or
 - (ii) with or without ground cover overhead, for the purpose of making a shaft intended to be greater than 4.5 metres deep; and
- (b) includes activities, buildings, headworks, or plant associated with the development or completion of the excavation or shaft.

(2) In these regulations, **tunnel** does not include a tunnel, as defined in subclause (1),—

- (a) within a coal mine; or
- (b) within a metalliferous mine; or
- (c) made in the course of—

- (i) the building of a bridge or the approaches to a bridge; or
- (ii) the preparation of a foundation for a building.

6 Employers and employees in relation to operations

- (1) In these regulations, **employer** includes—
 - (a) a person who controls a place of work; and
 - (b) a principal who controls the place of work at which a contractor or subcontractor works.
- (2) In these regulations, **employee**,—
 - (a) in relation to a person who controls a place of work, means a person lawfully at work in the place; and
 - (b) in relation to a principal, means an employee of a contractor or subcontractor or, if a contractor or subcontractor is an individual, the contractor or subcontractor, being an employee, contractor, or subcontractor doing work (other than residential work) that the contractor was engaged to do; and
 - (c) in relation to an operation, means an employee of the operation.
- (3) A duty imposed on an employer by these regulations is imposed in relation to every operation under the control of that employer.
- (4) A duty imposed on an employee by these regulations is imposed in relation to the operation at which the employee is employed.

7 Relationship between Act and regulations

A person on whom a duty is imposed by these regulations in relation to a particular set of circumstances must, on the occurrence of those circumstances, comply with that duty, despite the fact that the Act may impose the same, a similar, or an additional duty on that person in relation to that set of circumstances.

Part 1

Duties in relation to all mines and tunnels

8 Inspector to be notified of commencement, recommencement, installation, or cessation

- (1) Every employer must take all practicable steps to ensure that—
 - (a) an inspector is notified of the matters specified in sub-clauses (2) to (5) at the times specified in those sub-clauses; and
 - (b) every notification includes details as to—
 - (i) the location of the operation:
 - (ii) the nature of the operation:
 - (iii) the proposed date of commencement, recommencement, installation, or cessation:
 - (iv) the name of the manager and acting manager of the operation:
 - (v) addresses and numbers to be used to communicate with the operation.
- (2) The first matter is the proposed date of commencement of the operation. In the case of an operation that operates intermittently, the notification must be given not less than 24 hours before the proposed date of commencement. In any other case, the notification must be given not less than 14 days before the proposed date of commencement.
- (3) The second matter is the proposed date of recommencement of an operation that has not operated within the 3 months immediately before that date. The notification must be given not less than 14 days before the proposed date of recommencement.
- (4) The third matter is the proposed date of installation, in a mine or tunnel, of—
 - (a) a shaft; or
 - (b) a winding system.The notification must be given not less than 14 days before the proposed date of installation.
- (5) The fourth matter is the proposed date of cessation of an operation. In the case of an operation that has been conducted for fewer than 3 months, the notification must be given not less than 24 hours before the proposed date of cessation. In any

other case, the notification must be given not less than 14 days before the proposed date of cessation.

9 Register of accidents and serious harm

Every employer must take all practicable steps to ensure that a copy of the register referred to in section 25(1) of the Act is provided to an inspector at intervals of not more than 6 months.

10 Accident notification

For the purposes of section 25(2)(b) of the Act, every accident must be notified to the Secretary if it occurs at an operation and involves—

- (a) any explosion or ignition of coal dust or gas:
- (b) any fire or spontaneous heating:
- (c) any unplanned outburst of gas or water:
- (d) any unplanned contact with harmful chemicals:
- (e) winding plant, including a case of over-winding:
- (f) the loss of control of a vehicle:
- (g) the trapping of an employee:
- (h) any structural failure:
- (i) any unplanned fall of ground:
- (j) any major collapse of any part of the mine workings:
- (k) any uncontrolled accumulation of flammable or noxious gas:
- (l) any failure of a main ventilation fan for more than 30 minutes:
- (m) a case of electric shock requiring medical treatment.

11 Plans of mines and tunnels

- (1) Every employer must take all practicable steps to ensure that a plan is made of every operation.
- (2) The plan must—
 - (a) be prepared to a suitable scale; and
 - (b) be kept at the site office; and
 - (c) be available for inspection at all times at which an employee is present at the operation; and
 - (d) be updated at least once in every period of 6 months; and
 - (e) be copied to an inspector—

- (i) as soon as practicable after the date of completion; and
- (ii) at intervals of 12 months after that date; and
- (f) include details of—
 - (i) the route and voltage of all cables (excluding trailing cables); and
 - (ii) the position of all major switchgear.

12 Plans of abandoned mines and tunnels

- (1) Every employer must take all practicable steps to ensure that, immediately following the abandonment of a mine or tunnel, a plan is made of the operation.
- (2) The plan must be—
 - (a) prepared to a suitable scale; and
 - (b) correct as at the date of abandonment; and
 - (c) copied to an inspector.

13 Details to be included in plans

Every employer must take all practicable steps to ensure that the plans prepared under regulations 11 and 12 include such details as exist of—

- (a) every restricted zone:
- (b) tenure boundaries:
- (c) the angle of inclination, datum level at the collar, depth, and location of every borehole or shaft in which there may be cables or any other such services:
- (d) the direction, extent, and location of every known barrier, fault, intrusive dyke, old workings, washout, or water accumulation:
- (e) the floor levels and location of every traverse station:
- (f) the angle of dip, direction, nature, and thickness of every coal seam:
- (g) the cross and longitudinal sections of every level and lode:
- (h) the horizontal and vertical sections of the ventilation system, including details of—
 - (i) the direction of air flow; and
 - (ii) the locations where the measurements required by regulation 29 must be made; and

- (iii) the location and description of every device used to regulate or distribute air; and
- (iv) the location of emergency escape ways, first-aid stations, refuge bays, and rescue facilities:
- (i) the separation distances between shafts:
- (j) the location of every stationary device that gives access to the general communication system:
- (k) an indication of every location at which it is proposed to develop the operation within the next 12 months.

14 Operations record in relation to mines and tunnels

Every employer must take all practicable steps to ensure that a record, entitled an operations record,—

- (a) is kept at the site office; and
- (b) is available for inspection by an employee at any time at which an employee is present at the operation; and
- (c) records—
 - (i) the date, time, and findings of every examination required by regulation 16, and any action taken as a result of the examination; and
 - (ii) the measurements required by regulation 29; and
 - (iii) the readings required by regulation 37; and
 - (iv) the details of every misfired shot; and
 - (v) the measurements required by regulation 40(f), and the number of employees in each split at the time the measurements are taken; and
 - (vi) the measurements required by regulation 40(g); and
 - (vii) the time, duration, and location of every disconnection occurring under regulation 58(a).

15 Record of employees underground

Every employer must take all practicable steps to ensure that—

- (a) no employee is allowed to enter a mine or tunnel without the permission of the manager or acting manager; and
- (b) an accurate record is made of every employee's entry into, and exit from, a mine or tunnel; and
- (c) the record, or a copy of it, is kept at the entry point.

16 Examinations of mines and tunnels

Every employer must take all practicable steps to ensure that a competent person—

- (a) examines,—
 - (i) before the start of each working shift and at suitable times during each working shift, every area of the mine or tunnel where an employee is or will be present; and
 - (ii) at least weekly, every accessible area of the mine or tunnel, including every area containing barriers, machinery, seals, underground or surface infrastructure, and ventilation stoppings; and
 - (iii) at least weekly, every vehicle in the mine or tunnel; and
- (b) takes all practicable steps to eliminate, isolate, or minimise any significant hazard identified during the examination; and
- (c) ensures that every vehicle examined either is safe or is made safe.

17 Visits to solitary employees

Every employer must take all practicable steps to ensure that a competent person visits or contacts an employee required to be alone in a mine or tunnel at least twice during each working shift.

18 Main airways to be separated

Every employer must take all practicable steps to ensure that the main airways of a mine or tunnel are separated sufficiently to ensure—

- (a) stability; and
- (b) ventilation to the standards required by regulation 28(a) and (b).

19 Barometer, hygrometer, and thermometer

Every employer must take all practicable steps to ensure that—

- (a) a barometer and thermometer are placed above ground in a conspicuous position near the entrance to every mine or tunnel; and

- (b) a hygrometer is available for use both in the main intake airway and in the main return airway of every mine or tunnel.

20 Testing for flammable gas

- (1) Every employer must take all practicable steps to ensure that testing for the presence of flammable gas in a mine or tunnel is carried out—
 - (a) as often as practicable; and
 - (b) with a suitable device.
- (2) Every employer must take all practicable steps to ensure that,—
 - (a) if locked flame safety lamps are used to test for the presence of flammable gas in a mine or tunnel, there are in place suitable procedures dealing with—
 - (i) their safe use for that purpose; and
 - (ii) their examination and maintenance;
 - (b) if electronic detection devices are used to test for the presence of flammable gas in a mine or tunnel, there are in place suitable procedures dealing with—
 - (i) their safe use for that purpose; and
 - (ii) their examination and maintenance; and
 - (iii) their regular calibration.

21 Withdrawal of employees when high level of flammable gas present

- (1) This regulation applies when—
 - (a) the employee for the time being in charge of the whole of a mine or tunnel has reason to believe that flammable gas in the general body of air in the mine or tunnel is 2% by volume or more; or
 - (b) the employee for the time being in charge of a part of a mine or tunnel has reason to believe that flammable gas in the general body of air in that part of the mine or tunnel is 2% by volume or more.
- (2) Every employer must take all practicable steps to ensure that—
 - (a) every employee in the mine or tunnel or, as the case requires, the part of the mine or tunnel, withdraws from it; and

- (b) the only persons who enter the mine or tunnel or, as the case requires, the part of the mine or tunnel, are—
 - (i) a competent person who must enter to test for the presence of flammable gas; or
 - (ii) an employee who must enter to inquire into the cause of the presence of the flammable gas or to remove the flammable gas; and
- (c) no other employee enters the mine or tunnel or, as the case requires, the part of the mine or tunnel, until a competent person reports to the manager or acting manager that it is safe.

22 Self-rescue units

Every employer must take all practicable steps to ensure that—

- (a) suitable self-rescue units are provided and maintained in good order and condition in every mine and tunnel; and
- (b) every employee who enters a mine or tunnel has a self-rescue unit immediately available for use at all times while underground; and
- (c) every employee who enters a mine or tunnel has received sufficient training in the use of the self-rescue unit provided.

23 Outlets for workings

(1) Every employer must take all practicable steps to ensure that—

- (a) every mine or tunnel has suitable and sufficient outlets providing means of entry and exit for every employee in the mine or tunnel; and
- (b) the suitability and sufficiency of the outlets are determined having regard to the factors in subclause (2).

(2) The factors are—

- (a) the size of the mine or tunnel; and
- (b) the maximum number of employees likely to be in the mine or tunnel at any one time; and
- (c) the need to have at least 2 outlets that are separate from each other but that interconnect; and
- (d) the need to have at least—

- (i) 1 outlet that can be traversed on foot for the purpose of entry and exit; and
- (ii) 1 other outlet that has a mechanical means of entry and exit.

24 Equipment for raising and lowering employees

Every employer must take all practicable steps to ensure, in relation to every outlet required by regulation 23(1), that equipment for raising or lowering employees to or from the surface is—

- (a) suitable for the purpose; and
- (b) ready for immediate use.

25 Holes to be kept in advance of working places

(1) Every employer must take all practicable steps to ensure that drill holes of sufficient length to indicate a dangerous proximity are kept in advance of a working in a mine or tunnel that is approaching—

- (a) old workings; or
- (b) a place containing or likely to contain an accumulation of flammable or noxious gases, or an accumulation of water or mud.

(2) Subclause (3) applies when it is likely that a working in a mine or tunnel will break through into a place containing or likely to contain an accumulation of water or material that flows when wet.

(3) Every employer must take all practicable steps to ensure that the following precautions are observed until conditions in the place are ascertained:

- (a) the width of the working is reduced as far as possible; and
- (b) a borehole at least 6 metres long is kept constantly extended near the centre of the working face; and
- (c) flank boreholes are maintained on each side at intervals of not less than 4.5 metres.

26 Holing into old workings

Every employee who holes into old workings in a mine or tunnel must take all practicable steps to ensure that—

- (a) first, the hole is stopped up immediately; and
- (b) second, the manager or acting manager is notified.

27 Protection against inundation

Every employer must take all practicable steps to ensure that, if the workings in a mine or tunnel are liable to an inundation or an inburst of water or material that flows when wet, such additional chambers, drives, shafts, or other workings are provided as are necessary to ensure that employees in the mine or tunnel can escape safely.

28 Air quality and temperature

Every employer must take all practicable steps to ensure, in relation to every mine or tunnel, that—

- (a) there is fresh air in every place in which an employee is present or through which an employee passes; and
- (b) the humidity of the air is maintained at such a level as to minimise the likelihood of heat stress; and
- (c) measurements to ensure compliance with this regulation are made at suitable intervals, and at suitable locations, using methods and measuring devices capable of giving accurate results; and
- (d) there is no recirculation of air.

29 Measurement of air from fans

Every employer must take all practicable steps to ensure that, at least once in every week, a competent person—

- (a) measures, at the locations referred to in the plan of the operation required under regulation 13(h)(ii), the quantity of air being delivered and exhausted by main and auxiliary fans in the mine or tunnel; and
- (b) determines whether air is being recirculated in the mine or tunnel, and takes suitable action to stop any such recirculation.

30 Ventilation fans

Every employer must take all practicable steps to ensure that every ventilation fan (other than an auxiliary fan) in a mine or tunnel is provided with—

- (a) a suitable instrument to measure pressure differential; and
- (b) an automatic indicator registering the number of revolutions per minute of the fan.

31 Auxiliary fans

Every employer must take all practicable steps to ensure, in relation to every mine or tunnel, that—

- (a) no auxiliary fan is installed or used unless the quantity of air reaching it is, at all times, sufficient to ensure that air is not recirculated by the fan; and
- (b) every forcing auxiliary fan is installed at least 5 metres from the intake side of the place to be ventilated by the fan; and
- (c) every exhaust auxiliary fan is installed at least 5 metres from the return side of the place to be ventilated by the fan; and
- (d) when forcing and exhaust auxiliary fans are used simultaneously to ventilate the same face,—
 - (i) the forcing auxiliary fan is installed more than 15 metres from the face; and
 - (ii) the capacity of the forcing auxiliary fan is less than one-third of the capacity of the exhaust auxiliary fan; and
- (e) there is installed and maintained with every auxiliary fan an air duct for conducting a sufficient supply of air to and from the face or place to be ventilated; and
- (f) every auxiliary fan, whether driven by electricity or otherwise, is constructed in such a way as to prevent the possibility of an accumulation of an electrostatic charge; and
- (g) no employee starts, stops, or adjusts an auxiliary fan without a competent person's permission; and
- (h) if an auxiliary fan is installed in a place, no employee enters or remains in that place while the fan is not operating, unless a competent person has inspected the place and found it to be safe.

32 Withdrawal of employees if mechanical ventilation device fails

- (1) Every employer must take all practicable steps to ensure that, if the mechanical ventilation device fails in part of a mine or tunnel,—
 - (a) every employee in that part withdraws from it to a part where a mechanical ventilation device is working; and
 - (b) no employee enters that part of the mine or tunnel except for the purposes of—
 - (i) dealing with the failure of the mechanical ventilation device; or
 - (ii) testing whether or not that part is safe; and
 - (c) no other employee enters that part until a competent person reports to the manager or acting manager that that part is safe.
- (2) Every employer must take all practicable steps to ensure that, if the mechanical ventilation device fails in part of a mine or tunnel for more than 30 minutes, or in the whole of the mine or tunnel,—
 - (a) every employee in the mine or tunnel withdraws from it; and
 - (b) no employee enters the mine or tunnel except for the purposes of—
 - (i) dealing with the failure of the mechanical ventilation device; or
 - (ii) testing whether or not the mine or tunnel is safe; and
 - (c) no other employee enters the mine or tunnel until a competent person reports to the manager or acting manager that the mine or tunnel is safe.

33 Equipment not to be taken into mine or tunnel

- (1) Every employer must take all practicable steps to ensure that the equipment listed in subclause (2) is not taken into or used in a mine or tunnel, unless procedures relating to its safe use in mines or tunnels are in place and are complied with.
- (2) The equipment is—
 - (a) battery charging equipment:
 - (b) gas cutting equipment:

- (c) power tools:
- (d) static compressors:
- (e) welding equipment.

34 Handling explosives and detonators

Every employer must take all practicable steps to ensure that—

- (a) all explosives in a mine or tunnel are, at all times, the immediate responsibility of a competent person; and
- (b) explosives are not taken into, or used, in a mine or tunnel unless procedures relating to their storage, transportation, and use are in place and are complied with.

Part 2

Duties in relation to coal mines and gassy mines

Coal mines and gassy mines

35 Sparks or naked flames

Every employer must take all practicable steps to ensure that no device or material, including smoking materials, likely to cause a spark or naked flame is taken into or used in a coal mine or a gassy mine.

36 Prevention of ignition or combustion

Every employer must take all practicable steps to ensure, in relation to every coal mine or gassy mine, that—

- (a) the roof, floor, and sides of every accessible part of the mine are treated with incombustible dust in such a way as to ensure that dust on the roof, floor, and sides does not exceed 30% of combustible matter (unless the mine is naturally wet in every accessible part); and
- (b) a monitoring system, of a kind that will ensure early detection of spontaneous combustion, is maintained; and
- (c) water or stone dust barriers, of a kind that will limit the development and contain any ignition of coal dust or flammable gas, are erected at suitable sites.

37 Reading of barometer, hygrometer, and thermometer

Every employer must take all practicable steps to ensure that a competent person reads the barometer, hygrometer, and thermometer at a coal mine or a gassy mine during the examinations required by regulation 16.

38 Testing for flammable gas

- (1) Every employer must take all practicable steps to ensure that testing for the presence of flammable gas—
- (a) is continuous at every working face of a coal mine or a gassy mine at which—
 - (i) flammable gas has been, or is likely to be, detected; and
 - (ii) an employee is present; and
 - (b) is also carried out when required by regulation 20(1)(a).
- (2) Regulation 20(1)(b) and (2) applies to testing for flammable gas under subclause (1)(a).

39 Monitoring of mining and tunnel boring machines

Every employer must take all practicable steps to ensure that—

- (a) there is constant monitoring for flammable gas at every mining and tunnel boring machine used in a coal mine or a gassy mine; and
- (b) a method is provided to disconnect the electricity supply from the machine if the level of flammable gas at the machine exceeds 1.25% by volume.

*Gassy mines only***40 Ventilation**

Every employer must take all practicable steps to ensure, in relation to every gassy mine, that—

- (a) the percentage of flammable gas in the general body of air in the mine is not more than 1.25% by volume; and
- (b) a quantity of fresh air adequate to ensure that paragraph (a) is complied with is circulated—
 - (i) before an employee enters the mine; and
 - (ii) continuously whenever an employee is in the mine; and

- (c) the air at the commencement of the restricted zone in the intake airways is kept free from flammable gas; and
- (d) no air current passes through any stopping, or any unsealed, abandoned, or worked out area, before ventilating or passing through an active working place; and
- (e) the total number of employees ordinarily present in a ventilation district or ventilation circuit in the mine is kept to a minimum; and
- (f) a competent person measures, at least once in every week, the percentage of flammable gas in the main return and split returns; and
- (g) a competent person measures, at least once in every month, the quantity of air—
 - (i) in the main current; and
 - (ii) in every split; and
 - (iii) at the beginning of the main return airway; and
 - (iv) from each ventilating district; and
 - (v) at any additional place identified by the employer as a hazard.

Part 3

Duties in relation to use of electricity in operations

All operations

41 Electrical systems

Every employer must take all practicable steps to ensure that every electrical system in a mine or tunnel is so constructed, used, and maintained as not to be a cause or source of harm to any employee.

42 Earthing and other precautions

Every employer must take all practicable steps to ensure that appropriate precautions are taken, for example, by earthing, to minimise the likelihood of harm arising from material (other than conductors) becoming electrically charged in a mine or tunnel.

43 Conductors

Every employer must take all practicable steps to ensure that such precautions are taken in relation to the placement, insulation, and use of every conductor in a mine or tunnel as to minimise the likelihood that the conductor will be a cause or source of harm to any employee.

44 Connections

Every employer must take all practicable steps to ensure that every joint and connection in an electrical system in a mine or tunnel is suitable and safe for use.

45 Means of protection from excess current

Every employer must take all practicable steps to ensure, in relation to every mine or tunnel, that—

- (a) every part of every electrical system is protected from an excess of electric current; and
- (b) the maximum earth fault current in an electrical system whose voltage is 400 volts or greater, or that is used to supply mobile electrical plant, is limited to as low a value and as short a time as is reasonably practicable.

46 Electrical equipment

Every employer must take all practicable steps to ensure, in relation to every mine or tunnel, that—

- (a) no electrical equipment is used in circumstances in which its strength and capability may be exceeded in such a way as to cause a possibility of harm to any employee; and
- (b) electrical equipment is so constructed and protected as to minimise the likelihood that it will be a cause or source of harm to any employee, if it may be exposed to—
 - (i) mechanical damage; or
 - (ii) the effects of natural hazard, pressure, temperature, or weather; or
 - (iii) the effects of corrosive, dirty, dusty, or wet conditions; or

- (iv) an explosive or flammable substance, including dust, gas, or vapour.

47 Making electrical equipment safe

- (1) Every employer must take all practicable steps to ensure, in relation to every mine or tunnel, that—
 - (a) suitable means are available for disconnecting and separating all electrical equipment from any source of electrical energy that could be a cause or source of harm to any employee. The means must be such that the disconnection and separation are secure; and
 - (b) suitable means are available for cutting off the supply of electricity to any electrical equipment when the equipment could be a cause or source of harm to any employee.
- (2) Every employer must take all practicable steps to ensure, in relation to every mine or tunnel, that precautions are taken, when necessary, to prevent the occurrence of any significant hazard that may be caused by, or may arise out of, electrical equipment that is itself a source of electrical energy.

48 Work activities

Every employer must take all practicable steps to ensure that every work activity in a mine or tunnel is carried out by a competent person in a manner that does not cause harm or constitute a source of harm to any employee.

49 Precautions for work on equipment already dead

- (1) This regulation applies to electrical equipment that is in a mine or tunnel and that has been made dead in order to prevent harm while work is carried out on or near the equipment.
- (2) Every employer must take all practicable steps to ensure that adequate precautions are taken to prevent such equipment from being electrically charged during the work, if that occurrence could be a cause or source of harm to any employee.

50 Protective equipment

Every employer must take all practicable steps to ensure that all clothing or equipment provided to protect employees from harm that may be caused by, or may arise out of, an electrical hazard in a mine or tunnel is—

- (a) suitable for the purpose; and
- (b) used by employees for the purpose whenever the circumstances require its use; and
- (c) maintained in such a way as to make it safe to use.

51 Work on or near bare live conductor

Every employer must take all practicable steps to ensure that no employee carries out work in a mine or tunnel on a bare live conductor, or so near the conductor as to make it likely that the conductor will be a cause or source of harm to the employee, unless—

- (a) it is unreasonable in all the circumstances for the conductor to be isolated and earthed; and
- (b) it is reasonable in all the circumstances for the employee to work on or near the conductor while it is live; and
- (c) suitable precautions, including the use of suitable protective equipment, are taken to prevent injury to the employee.

52 Switchgear for cutting off electricity

Every employer must take all practicable steps to ensure that, if electrical equipment (other than a communication or monitoring system) is installed in a mine or tunnel, switchgear is provided that—

- (a) has the purpose of cutting off the supply of electricity to the equipment; and
- (b) is located at the surface; and
- (c) has readily accessible controls located near the entrance to the mine or tunnel.

53 Oil-filled electrical equipment

Every employer must take all practicable steps to ensure that electrical equipment that uses oil as a means of arc suppres-

sion, cooling, or insulation is not installed or used in a mine or tunnel.

54 Fire protection

Every employer must take all practicable steps to ensure, in relation to every mine or tunnel, that suitable and sufficient fire extinguishers are provided beside all high voltage electrical equipment and, if a significant risk of fire exists, beside all other electrical equipment.

Gassy mines only

55 Restriction on electrical equipment used in restricted zones

- (1) Every employer must take all practicable steps to ensure that electrical equipment used in a restricted zone is of a kind to which either subclause (2) or subclause (3) applies.
- (2) This subclause applies to electrical equipment—
 - (a) that meets the essential requirements of European Council Directive 94/9/EC or Directive 82/130/EEC; and
 - (b) that has a certificate of conformity or a certificate of inspection showing compliance with all the applicable harmonized European standards; and
 - (c) in respect of which every condition specified on the certificate and by the manufacturer has been complied with.
- (3) This subclause applies to electrical equipment—
 - (a) that has received a certificate of conformity from a testing station accredited by Standards Australia, showing that the equipment complies with Australian Standard AS 2380 for group I electrical equipment for use in mines susceptible to methane; and
 - (b) in respect of which every condition specified on the certificate of conformity and by the manufacturer has been complied with.
- (4) Every employer must take all practicable steps to ensure that no electrical equipment in a restricted zone is opened so that a live conductor is exposed to the surrounding atmosphere, if

the conductor is not safeguarded in such a way as to prevent a spark or thermal effect produced in the equipment from causing ignition of an explosive mixture of air and flammable gas or vapour.

56 Restrictions on certain electrical equipment

- (1) Every employer must take all practicable steps to ensure that any electric safety lamp taken into or used in a gassy mine—
 - (a) complies with European Community Standard EN 50033, as shown by a certificate of conformity from an approved certification body of the European Community; and
 - (b) complies with all the conditions specified by the certificate of conformity and by the manufacturer.
- (2) Every employer must take all practicable steps to ensure that the following equipment is not taken into or used in a gassy mine unless it complies with subclause (3):
 - (a) an electric gas detector;
 - (b) signalling equipment;
 - (c) a telephone;
 - (d) any equipment necessary for any of the equipment referred to in paragraphs (a) to (c) to operate;
 - (e) any electrical equipment required for the safety of employees (other than an electric safety lamp).
- (3) For the purposes of subclause (2), equipment complies with this subclause if it is of a kind that—
 - (a) is safeguarded in such a way as to prevent a spark or thermal effect produced in the safety equipment, or its source of electricity, from causing ignition of an explosive mixture of air and flammable gas or vapour; and
 - (b) complies with either or both of regulation 55(2) or (3).

57 Electrical equipment used occasionally

- (1) This regulation applies to electrical equipment that does not comply with regulation 55, but that is required to be used occasionally in 1 or more areas in a gassy mine for measuring, monitoring, recording, or testing.
- (2) Every employer must take all practicable steps to ensure that equipment to which this regulation applies is—

- (a) taken into an area in the mine only under the personal supervision of a competent person; and
 - (b) used in an area in the mine only when the percentage of flammable gas in the general body of the air in the area is less than 0.25% by volume; and
 - (c) maintained so as to remain safe throughout the entire period of its use in the area in the mine.
- (3) Every employer must take all practicable steps to ensure that a competent person who takes equipment to which this regulation applies into an area in a gassy mine tests for gas before the equipment is switched on and continuously during its use.

58 Disconnection of electricity

Every employer must take all practicable steps to ensure that,—

- (a) if at any time the percentage of flammable gas in the general body of air in any place in a gassy mine exceeds 1.25% by volume, all electrical equipment in the place, other than safety equipment required or designed to be safe for use at all times, is disconnected from the supply of electricity until a competent person considers it is safe to reconnect the electricity;
- (b) if the main ventilation fan fails, the electricity supply to the gassy mine is disconnected until the main ventilation fan is restored and a competent person considers it is safe to reconnect the electricity.

59 Remote control and electric interlock circuits

- (1) This regulation applies to remote controls or electric interlock circuits associated with plug and socket couplings.
- (2) Every employer must take all practicable steps to ensure that every such control or circuit in a gassy mine is safeguarded in such a way as to prevent a spark or thermal effect produced in the circuit from causing ignition of an explosive mixture of air and flammable gas or vapour.

Part 4 Offences

60 Offences

- (1) The provisions to which this regulation applies are regulations 8 to 59.
- (2) The provisions referred to in subclause (1) are provisions to which section 50 of the Act applies. (Section 50 provides that every person who fails to comply with a provision to which that section is declared to apply commits an offence and is liable on summary conviction to a fine.)

Marie Shroff,
Clerk of the Executive Council.

Explanatory note

This note is not part of the regulations, but is intended to indicate their general effect.

These regulations, which come into force 28 days after the date of their notification in the *Gazette*, deal with matters relating to health and safety in underground mines and tunnels.

Issued under the authority of the Acts and Regulations Publication Act 1989.
Date of notification in *Gazette*: 7 October 1999.

Contents

- 1 General
 - 2 Status of reprints
 - 3 How reprints are prepared
 - 4 Changes made under section 17C of the Acts and Regulations Publication Act 1989
 - 5 List of amendments incorporated in this reprint (most recent first)
-

Notes

1 *General*

This is a reprint of the Health and Safety in Employment (Mining—Underground) Regulations 1999. The reprint incorporates all the amendments to the regulations as at 8 October 1999, as specified in the list of amendments at the end of these notes.

Relevant provisions of any amending enactments that have yet to come into force or that contain relevant transitional or savings provisions are also included, after the principal enactment, in chronological order.

2 *Status of reprints*

Under section 16D of the Acts and Regulations Publication Act 1989, reprints are presumed to correctly state, as at the date of the reprint, the law enacted by the principal enactment and by the amendments to that enactment. This presumption applies even though editorial changes authorised by section 17C of the Acts and Regulations Publication Act 1989 have been made in the reprint.

This presumption may be rebutted by producing the official volumes of statutes or statutory regulations in which the principal enactment and its amendments are contained.

3 *How reprints are prepared*

A number of editorial conventions are followed in the preparation of reprints. For example, the enacting words are not included in Acts, and provisions that are repealed or revoked

are omitted. For a detailed list of the editorial conventions, see <http://www.pco.parliament.govt.nz/editorial-conventions/> or Part 8 of the *Tables of New Zealand Acts and Ordinances and Statutory Regulations and Deemed Regulations in Force*.

4 Changes made under section 17C of the Acts and Regulations Publication Act 1989

Section 17C of the Acts and Regulations Publication Act 1989 authorises the making of editorial changes in a reprint as set out in sections 17D and 17E of that Act so that, to the extent permitted, the format and style of the reprinted enactment is consistent with current legislative drafting practice. Changes that would alter the effect of the legislation are not permitted. A new format of legislation was introduced on 1 January 2000. Changes to legislative drafting style have also been made since 1997, and are ongoing. To the extent permitted by section 17C of the Acts and Regulations Publication Act 1989, all legislation reprinted after 1 January 2000 is in the new format for legislation and reflects current drafting practice at the time of the reprint.

In outline, the editorial changes made in reprints under the authority of section 17C of the Acts and Regulations Publication Act 1989 are set out below, and they have been applied, where relevant, in the preparation of this reprint:

- omission of unnecessary referential words (such as “of this section” and “of this Act”)
- typeface and type size (Times Roman, generally in 11.5 point)
- layout of provisions, including:
 - indentation
 - position of section headings (eg, the number and heading now appear above the section)
- format of definitions (eg, the defined term now appears in bold type, without quotation marks)
- format of dates (eg, a date formerly expressed as “the 1st day of January 1999” is now expressed as “1 January 1999”)

- position of the date of assent (it now appears on the front page of each Act)
- punctuation (eg, colons are not used after definitions)
- Parts numbered with roman numerals are replaced with arabic numerals, and all cross-references are changed accordingly
- case and appearance of letters and words, including:
 - format of headings (eg, headings where each word formerly appeared with an initial capital letter followed by small capital letters are amended so that the heading appears in bold, with only the first word (and any proper nouns) appearing with an initial capital letter)
 - small capital letters in section and subsection references are now capital letters
- schedules are renumbered (eg, Schedule 1 replaces First Schedule), and all cross-references are changed accordingly
- running heads (the information that appears at the top of each page)
- format of two-column schedules of consequential amendments, and schedules of repeals (eg, they are rearranged into alphabetical order, rather than chronological).

5 *List of amendments incorporated in this reprint
(most recent first)*
