1992—No. 325

MINES INSPECTION ACT 1901—GENERAL RULE

(Relating to overhead electrical lines)

NEW SOUTH WALES

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HIS Excellency the Governor, with the advice of the Executive Council, and in pursuance of the Mines Inspection Act 1901, has been pleased to make the General Rule set forth hereunder.

I. R. CAUSLEY
Minister for Natural Resources.

Commencement

1. This General Rule commences on 1 July 1992.

Amendment

2. The Mines Inspection General Rules 1901 are amended:

(a) by omitting General Rule 56 (q) and by inserting instead the following paragraph:

(q) (i) An overhead line on or about a mine is required to comply with Schedule 1, unless otherwise approved.

(ii) Despite subparagraph (i), an inspector may direct that part or all of any such overhead line which the inspector thinks is unsafe or hazardous be disconnected, removed, repaired or made safe to the satisfaction of and in the manner and within the time specified by the inspector.

(iii) Such a direction is to be given in writing to the owner of the overhead line concerned.

(iv) The owner of an overhead line on or about a mine must ensure that the line complies with this paragraph and must comply with a direction under subparagraph (ii) by an inspector in relation to the line.

(v) In this paragraph and in Schedule 1:

"overhead line" means an aerial conductor or conductors with associated supports, insulators and other apparatus erected for the purpose of the transmission, distribution or conveyance of electricity.

(b) by inserting after General Rule 77 the following Schedule:

SCHEDULE 1—OVERHEAD POWER LINES

(General Rule 56 (q))

PART 1—PRELIMINARY

Definitions

1. In this Schedule:

"active conductor" means any conductor of an electricity supply system other than a neutral or earthed conductor;

"aerial conductor" means a conductor which is placed above the ground and in the open air and is suspended between 2 or more supports;

"carriageway" means that portion of a road which is improved or designed for use by, or used by, vehicular traffic, including my road shoulder and breakdown lane but not including any footpath or other lateral part of the road not so improved, designed or used;

"insulated", in relation to an overhead line, means provided with insulation material of the appropriate grade for the voltage at which the overhead line is or is to be operated;

"overhead service line" means an overhead line operating at a voltage lower than 650 volts located between an electricity supply mains and a point of attachment;

"point of attachment" means the point at which the aerial conductors of an overhead service line are terminated on a building, pole or structure;

"point of entry" means the point at which the electricity mains enter a building or appurtenance of a building;

"support" means, in relation to an overhead line, the total structural system used to support the overhead line at a particular location and includes elements such as foundations, poles, steelwork, stays, struts, crossarms and fittings;

"voltage" means the nominal difference of potential between active conductors, or the nominal difference of potential between an active conductor and ground multiplied by the square root of 3, whichever is the greater.

Exclusions

2. This Schedule does not apply to the following:

(a) an overhead line which is part of a system which supplies electricity to an electrically-powered vehicle through an overhead conductor with which that vehicle makes continuous contact;

(b) an overhead line which is part of a feeder which supplies such a system and which is carried on the same supports as the feeders which supply the overhead conductor with which the vehicle makes continuous contact;

(c) an overhead line operating at a voltage not exceeding 32 volts alternating current or 115 volts direct current;

(d) except as provided by clause 18 (3)—any part of an overhead line which is within the boundaries of a fence or enclosure preventing ready access by unauthorised persons and which is used for the purpose of connection to a ground-type substation, regulating station or the like;

(e) any part of an overhead line which is out of service for maintenance or modification;

(f) any part of an overhead line which is under construction and not yet placed in service.

PART 2—SAFETY REQUIREMENTS FOR THE DESIGN AND CONSTRUCTION OF NEW OVERHEAD LINES

Application

3. This Part applies to any parts of an overhead line on or about a mine:

(a) which are placed in service on or after 1 July 1992; or

(b) which, though placed in service before 1 July 1992, are modified on or after that date; or

(c) which, though placed in service before 1 July 1992, no longer comply with General Rule 56 (q) as in force on the date on which the parts were placed in service.

Insulated conductors

4. (1) The maximum temperature at which an insulated aerial conductor is designed to operate, having regard to its required current loading (excluding fault currents or emergency load currents) and to the environment where it is located, must not be such as to damage its insulation in such a way that the conductor may cause injury by electric shock to a person or damage to property.

(2) Every aerial active conductor of an overhead service line, if terminating on a building or appurtenance to a building, must be insulated between the last pole and the point of attachment on the building or appurtenance (including the connection to any installation).

Loading conditions

5. (1) Any calculation of the stresses to which supports, insulators and conductors may be subjected must take into account their likely service conditions so as to avoid their failure, so far as is reasonably practicable.

(2) An insulated overhead service line is not to be attached to a building or appurtenance to a building unless a point of attachment capable of withstanding, without damage, any mechanical loads to which it may be subjected under design conditions has been provided.

Earthing of supports

6. (1) This clause applies to any portion of a support which forms part of an overhead line and which is capable of being touched by a person without the use of a ladder or other device to assist access, and which might reasonably be expected to become energised from the electricity supply system if contact occurs between the portion and a conductor or a failure of insulation occurs.

(2) Any portion of a support to which this clause applies must be earthed, insulated or enclosed in such a manner as to prevent, so far as is reasonably practicable, any injury arising from the presence of a voltage gradient between earth and the portion of the support.

(3) A conductor which earths any portion of a support to which this clause applies must be protected from mechanical damage from ground level to a height not less than 1.8 metres above ground level.

Location of point of attachment

7. A point of attachment must not be normally accessible to a person without the use of a ladder or other device to assist access.

Prevention of unauthorised access

8. Devices must be fitted or measures taken to prevent, so far as is reasonably practicable, access (other than access obtained by the use of a ladder or other device) by a person to a position near a live aerial conductor or apparatus, where injury from electric shock is possible.

Clearance of overhead line from ground

9. (1) This clause applies to aerial conductors of an overhead line other than the insulated aerial conductors of an overhead service line.

(2) An aerial conductor of a type specified in column 1 of the Table to this clause must be so located that, when operating at the voltage specified in that column, the distance to ground in any direction, from any position to which any part of the conductor may sag under operational conditions (excluding fault current conditions or emergency load current conditions), is not less than the distance specified in relation to the situation of the line in column 2, 3 or 4 of that Table.

(3) If an overhead line is erected in a situation which later changes so that the aerial conductors of the line no longer meet the requirements of this clause, the line must be reconstructed in accordance with those requirements.

TABLE—CLEARANCE OF CONDUCTORS FROM GROUND

Column 1	Column 2	Column 3	Column 4
	Situations and distances		
Type and voltage of aerial conductor	Over a carriageway	Over land other than a carriageway and other than land described in Column 4	Over land which is too steep or swampy to be traversed by vehicular traffic or mobile machinery
Bare or insulated conductor not exceeding 650 volts or any insulated and earthed screened conductor exceeding 650 volts	5.5 metres	5.5 metres	4.5 metres
Bare conductor exceeding 650 volts but not exceeding 33,000 volts or insulated conductor exceeding 650 volts	6.7 metres	5.5 metres	4.5 metres
Bare conductor exceeding 33,000 volts but not exceeding 132,000 volts	6.7 metres	6.7 metres	5.5 metres
Bare conductor exceeding 132,000 volts but not exceeding 220,000 volts	7.5 metres	7.5 metres	6.0 metres
Bare conductor exceeding 220,000 volts but not exceeding 330,000 volts	8.0 metres	8.0 metres	6.7 metres
Bare conductor exceeding 330,000 volts but not exceeding 550,000 volts	9.0 metres	9.0 metres	7.5 metres

Clearance of insulated overhead service line from ground

10. (1) An insulated aerial conductor of an overhead service line located as specified in column 1 of the Table to this clause must be so positioned that the distance to ground in any direction from any position to which any part of the conductor may sag under operational conditions (excluding fault current conditions or emergency load current conditions) is not less than the distance specified in column 2 of that Table.

(2) If an overhead service line is erected in a situation which later changes so that the insulated aerial conductors of the line no longer meet the requirements of this clause, the line must be reconstructed in accordance with those requirements.

TABLE—CLEARANCE OF INSULATED CONDUCTORS FROM GROUND

Column 1: Situation	Column 2: Distance
Over the centre of a carriageway	5.5 metres
Over any part of a carriageway (other than the centre)	4.9 metres
Over a vehicular crossing of a footway (otherwise than over a residential driveway)	4.5 metres
Over any other portion of a footway (including any portion crossed by a residential driveway)	3.0 metres
Over land which is, or is likely to be. used by vehicles and is appurtenant to a dwelling	3.0 metres
Over other land which is, or is likely to be, used by vehicles	4.5 metres
Elsewhere	2.7 metres

Clearance of conductors from structures

11. The aerial conductors of an overhead line must be so located away from structures that the swing or sag of the conductors under operational conditions (excluding fault current conditions or emergency load current conditions) cannot cause injury from electric shock to a person or damage to property.

Arrangement and separation of aerial conductors

12. (1) If aerial conductors, the voltage of which does not exceed 650 volts, are carried on the same pole or support as those of a higher voltage, the lower voltage conductors must be placed below the higher voltage conductors.

(2) Subclause (1) does not apply to:

(a) an insulated pilot cable erected for the purpose of protection or telecommunication; or

(b) an insulated cable for an auxiliary power supply; or

(c) an overhead earth wire; or

(d) an insulated and earthed screened conductor.

(3) Any 2 bare aerial conductors carried on the same poles or supports or on separate poles or supports and having a difference in voltage with respect to each other, must have, so far as is reasonably practicable, such vertical, horizontal or angular separation from each other as to prevent the conductors from coming into contact with, or within arcing distance of, each other.

Automatic de-energisation of conductors under fault conditions

13. An overhead line must, where reasonably practicable, be so installed that its aerial conductors are automatically de-energised under permanent fault conditions.

PART 3—SAFETY REQUIREMENTS FOR EXISTING OVERHEAD LINES

Application

14. This Part applies to any parts of an overhead line on or about a mine which:

(a) were placed in service before 1 July 1992; and

(b) have not been modified on or after 1 July 1992; and

(c) continue to comply with General Rule 56 (q) as in force on the date on which the parts were placed in service.

Insulation

15. (1) Every aerial active conductor of an overhead service line, if terminating on a building or appurtenance to a building, must be insulated between the last pole and the point of attachment on the building or appurtenance (including the connection to any installation).

(2) Covered conductors erected before 8 July 1987 are taken to be insulated in accordance with this clause if they comply with:

(a) AS No. C306-1958 (Australian Standard Specification for Bare and Covered Hard-drawn Copper Conductors (For Overhead Lines)) of the Standards Association of Australia; or

(b) BS 6485: 1971 (Specification for PVC-covered Conductors for Overhead Power Lines) of the British Standards Institution.

Prevention of unauthorised access

16. Devices must be fitted or measures taken to prevent, so far as is reasonably practicable, access (other than access obtained by the use of a ladder or other device) by a person to a position near any live aerial conductor or apparatus, where injury from electric shock is possible.

PART 4—MAINTENANCE REQUIREMENTS FOR ALL OVERHEAD LINES

Application

17. This Part applies to an overhead line (whenever placed in service) on or about a mine.

Maintenance of lines and fittings

18. (1) Every overhead line, including earthing conductors, electrodes and clamps associated with the overhead line, must be inspected annually, and must be maintained in proper working order.

(2) The integrity of insulation of overhead service lines must be maintained in the vicinity of the point of entry or adjacent to roofs or structures if the lines may become accessible in such a way as to allow contact by persons with the insulated service wires, service loops or connectors.

(3) All protective devices, including fuses, automatic reclosing circuit breakers, protection relays or the like, whether provided for the purposes of clause 6 or 13 or otherwise, must be inspected annually and must be maintained in proper working order.

Avoidance of contact between trees and aerial conductors

19. If contact between an aerial conductor of an overhead line and any tree or other flora might reasonably be expected to result in consequential injury from electric shock to a person or damage to property, the flora must be trimmed or other measures taken to prevent contact between the flora and the aerial conductor.

Clearance to ground and structures

20. Every overhead line must be maintained to ensure that the clearances to ground and structures are not less than those prescribed in this Schedule, or, if the line is one to which Part 3 applies, are not less than those prescribed by General Rule 56 (q) as in force on the date on which the line was placed in service.

Disused lines

21. If an overhead line has ceased to be used for the conveyance of electricity, the owner of the line must continue to maintain it in accordance with this Schedule or dismantle it.

EXPLANATORY NOTE

The object of this General Rule is to update the overhead power line requirements in the Mines Inspection General Rules 1901.

General Rule 56 (q) is to be replaced with a brief paragraph outlining the central obligation of a mine owner as to overhead lines. The details are contained in a new schedule.

The new schedule complements the Electricity (Overhead Line Safety) Regulation 1991, which took effect on 1 September 1991, but does not apply to mines. The wording is substantially the same.
