

The Use of Electricity in Mines Regulations, 1996

Repealed

by Chapter E-6.3 Reg 9 (effective September 29, 2004).

Formerly

Chapter E-6.3 Reg 4 (effective February 28, 1996).

NOTE:

This consolidation is not official. Amendments have been incorporated for convenience of reference and the original statutes and regulations should be consulted for all purposes of interpretation and application of the law. In order to preserve the integrity of the original statutes and regulations, errors that may have appeared are reproduced in this consolidation.

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CHAPTER E-6.3 REG 4

The Electrical Inspection Act, 1993

Title

1 These regulations may be cited as *The Use of Electricity in Mines Regulations, 1996*.

Interpretation

2 In these regulations:

- (a) “**Act**” means *The Electrical Inspection Act, 1993*;
- (b) “**CSA standard**” means the standard adopted by section 3, as amended by the Appendix.

8 Mar 96 cE-6.3 Reg 4 s2.

CSA standard adopted with amendments

3 Subject to the Act and these regulations, the Canadian Standards Association standard CAN/CSA-M421-93 *Use of Electricity in Mines* is:

- (a) adopted; and
- (b) amended in the manner set forth in the Appendix.

8 Mar 96 cE-6.3 Reg 4 s3.

Compliance required

4 Compliance with the CSA standard is required as though the provisions of that standard had been made pursuant to the Act.

8 Mar 96 cE-6.3 Reg 4 s4.

Application

5 The CSA standard governs the workmanship and all other matters pertaining to electrical equipment and the installation of electrical equipment that operates or is intended to operate in mines and quarries.

8 Mar 96 cE-6.3 Reg 4 s5.

R.R.S. c.E-7.1 Reg 5 repealed

6 *The Use of Electricity in Mines Regulations* are repealed.

8 Mar 96 cE-6.3 Reg 4 s6 .

Appendix

Amendments to The Canadian Standards Association Standard CAN/CSA-M421-93 *Use of Electricity in Mines*

3.3.6.3 See Appendix B2 for a reproduction of Table 2 of CAN/CSA C22.3 No.1 as referred to in this rule.

3.4.4 Cable Couplers

Rule 3.4.4 is supplemented as follows:

- (f) Cable coupler connections shall be broken only under no load conditions.

Section 3.4.5 Conveyer Systems

Section 3.4.5.1 is deleted and the following substituted:

3.4.5.1 Emergency stopping means for electrically driven conveyors shall be designed and located as prescribed in *The Mines Regulations*, being Saskatchewan Regulations 284/78.

4.5.3(a) is amended as follows:

4.5.3(a) Cable connections to overhead stub lines shall be connected only to overhead stub lines having a lockable disconnecting device at the source of the stub line.

4.6.3.2 Permanent Splicing of Trailing Cables

4.6.3.2(c) is amended by deleting the following words:

A repair and test record shall be kept.

Section 4.6.3.4 is deleted and the following substituted:

Every cable assembly which exceeds 300 volts shall be provided with a visible means of identifying the equipment to which it is connected or other means established by each mine in accordance with its safety standard procedures.

4.7.3.5 This rule is deleted.

5.2.1 Conductors

Rule 5.2.1. is supplemented as follows:

5.2.1.3 Where portable power cables are used to supply power to fixed equipment, ground fault protection and ground conductor monitoring must be incorporated.

5.7.1 Communications

Rule 5.7.1.1 is amended as follows:

5.7.1.1 Voice-communication-system voltage shall be 76 V or less, with the exception of the integral ringing circuit of a telephone.

5.10.2.5 Editorial correction

This rule should have read:

Trolley and multiphase bus systems used to supply ac power to mobile electrical equipment shall:

- (a) be provided with portable power cable meeting the requirements of CSA Standard CAN/CSA-C22.2 No. 96 and be type SHC-GC, SHD-GC, or SHD-BGC from the trolley or pentagraph to the mobile electrical equipment; and
- (b) be provided with strain relief devices suitable for the conditions of use installed on the portable power cable from the trolley or pentagraph to the mobile electrical equipment.

Appendix B

Appendix B is amended by adding the following note B2:

B2 The minimum vertical clearances of wires and conductors above ground or rails shall be as specified in the table below, except that

- (a) the clearances over roadways or other areas where vehicles may be expected to be used are based on a combined vehicle and load height of 4.15 m; for provinces and territories that permit the combined height of vehicle and load to exceed 4.15 m, the applicable clearance specified in the table shall be increased by the amount by which the allowable combined vehicle and load height exceeds 4.15 m;
- (b) for altitudes exceeding 1000 m and where voltages exceed 50 kV, the clearances specified in the table shall be increased by 1% for each 100 m in excess of 1000 m above mean sea level;
- (c) the rail level of a railway where ballast is used is not fixed and, therefore, when clearances on any line that crosses a railway are constructed or altered, an additional 0.3 m of vertical clearance above rails shall be provided, unless a lesser amount is mutually agreed upon, to permit normal subsequent ballast adjustments without encroaching on the specified minimum clearance;
- (d) when clearances on a line that crosses or will cross any public thoroughfare likely to be travelled by road vehicles are constructed or altered, an additional 0.225 m of vertical clearance shall be provided, to permit the road surface to be raised by this amount during subsequent road work operations without encroaching on the specified minimum clearance.

Minimum Vertical Design Clearances Above Ground or Rails, Alternating Current

Location of wires or	Guys; messengers; communication, span, and lightning protection wires;	Trolley contact conductors and associated span wires; trolley feeders 0-750 V when paralleled by trolley contact	Open supply conductors and service conductors, alternating current+ minimum clearances in meters								
			0 to 750 V	Over 0.75 to 22 kV	Over 22 to 50 kV	Over 50 to 90 kV	Over 90 to 120 kV	Over 120 to 150 kV	Over 150 to 250 kV	Over 250 to 300 kV	Over 300 kV
	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11
Over land likely to be travelled by road vehicles, including highways, streets, lanes, alleys, and driveways (other than to residences or residence garages)	4.42	4.42	4.42	4.75	5.2	5.5	5.8	6.1	6.1 plus 0.01 m for each kilovolt over 150 kV	7.1 plus 0.07 m for each kilovolt over 250 kV	10.6 plus 0.025 m for each kilovolt over 300 kV
Over the right of way of underground pipelines	4.42	4.42	4.42	4.75	5.2	5.5	5.8	6.1	6.1 plus 0.01 m for each kilovolt over 150 kV	7.1 plus 0.04 m for each kilovolt over 250 kV	9.1 plus 0.025 m for each kilovolt over 300 kV
Alongside and within the limits (with no overhang) of streets and highways in densely populated areas	4.42*	4.42	4.42	4.75	5.2	5.5	5.8	6.1	6.1 plus 0.01 m for each kilovolt over 150 kV	7.1 plus 0.07 m for each kilovolt over 250 kV	10.6 plus 0.025 m for each kilovolt over 300 kV
Over or alongside farmland likely to be travelled by vehicles**	4.42++	N/A	4.42++	4.75++	5.2	5.5	5.8	6.1	6.1 plus 0.01 m for each kilovolt over 150 kV	7.1 plus 0.04 m for each kilovolt over 250 kV	9.1 plus 0.025 m for each kilovolt over 300 kV
Alongside land likely to be travelled by road vehicles**						5.5	5.8	6.1	6.1 plus 0.01 m for each kilovolt over 150 kV	7.1 plus 0.07 m for each kilovolt over 250 kV	10.6 plus 0.025 m for each kilovolt over 300 kV
Over driveways to residences and residence garages for vehicles not exceeding 2.4 m in height	3.7	3.7	3.7	4.75	5.2	5.5	5.8	6.1	6.1 plus 0.01 m for each kilovolt over 150 kV	7.1 plus 0.07 m for each kilovolt over 250 kV	10.1 plus 0.025 m for each kilovolt over 300 kV
Alongside roads and highways in areas unlikely to be travelled by road vehicles (with no overhang) and within 1.5 m of the limit of the right of way#	3.0	N/A	3.4	4.15	4.6	4.9	5.2	5.5	5.5 plus 0.01 m for each kilovolt over 150 kV	6.5 plus 0.07 m for each kilovolt over 250 kV	10.1 plus 0.025 m for each kilovolt over 300 kV
Over walkways or ground normally accessible to pedestrians only##	2.5	N/A	3.1	3.4	3.7	4.0	4.3	4.6	4.6 plus 0.01 m for each kilovolt over 150 kV	5.6 plus 0.01 m for each kilovolt over 250 kV	6.1 plus 0.01 m for each kilovolt over 300 kV
Above top of rails at railway crossings	7.3	6.7	7.3	7.6	8.1	8.4	8.7	9.0	9.0 plus 0.01 m for each kilovolt over 150 kV	10 plus 0.01 m for each kilovolt over 250 kV	10.5 plus 0.01 m for each kilovolt over 300 kV

NOTES ON TABLE

Above 250 kV (line-to-ground) the specified clearances are minimum and are based on horizontal configuration of conductors where induced electrostatic steady-state currents are low. Other types of construction with double-circuit vertical construction may require larger clearances to keep steady-state currents to the same safe minimum values.

+For dc voltages below 750 V, use columns 2 and 3

*Where communication wires or communication cables run along alleys, this clearance may be reduced to 4 m.

**Where a line runs parallel to land accessible to vehicles but is over land not requiring clearance for vehicles, the wire may swing out over the area accessible to vehicles or, at voltages of over 250 kV, vehicles may be subjected to a hazard from induced voltages.

These vertical clearances apply where the conductor (in the swung condition where specified) is over the travelled way or within the following horizontal distances from the edge of the travelled way:

0 m for wires in Columns 1 to 5 inclusive;

1 m for wires in Column 6;

1.4 m for wires in Column 7;

1.7 m plus 0.01 m for each kilovolt over 150 kV for wires in Column 9;

12 m for wires at rest in Column 10;

18 m for wires at rest in Column 11;

These distances apply with the wire at the swing angle as calculated in Clause 4.2.7. Where the above horizontal distances are exceeded, minimum permissible vertical clearances are governed by the ground over which the line passes.

++On farmlands not likely to be travelled by high farm vehicles, these clearances may be reduced by 0.76 m. Examples of such ground are steep slopes, sidehills, and rocky ledges. This note does not apply to swamps or other areas that may be crossed by vehicles in winter.

#This is ground generally adjacent to fences and accessible to small vehicles but not likely to be travelled by high road vehicles or high farm machinery.

##Seasonal conditions may dictate additional clearances.

