



Working Near Overhead Power Lines – Safe Work Procedures

CAGC INFORMATION ALERT

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The following information is not a definitive guide to government legislation and does not release users of this document from their responsibilities under applicable legislation.

Power Lines Are Everywhere

General

Using proper safe practices/procedures near power lines is absolutely necessary. Work with your supervisor and co-workers to ensure a proper safety attitude at your workplace.

Injuries and deaths near power lines are all too common. Near misses are frequent. Avoiding contact with power lines requires common sense, a strong awareness of safety factors, and good decision making ability.

Please review and adhere to the following practices/procedures when planning and performing work near overhead power lines.

- Before work begins, conduct a hazard assessment and examine the work area to identify and correct hazards and to establish that the safe limits of approach distances to overhead power lines contained in table 1 can be maintained;
- Contact the electrical utility to determine the operating voltage of the line and confirm the safe limits of approach distances;
- Also, request assistance from the electrical utility if the work must be performed at a distance that is less than those specified in table 1. In this situation have the electrical utility disconnect or relocate the line if needed. If this isn't practical or feasible to do so, carry out the following
 - Keep an eye out overhead at all times; take time to examine the hazard;
 - Before operating equipment, make a safety plan that prevents contact with lines;
 - Take extra care and precautions;
 - Check the height of your equipment or load;
 - Plan your moves – are there power lines to pass under or avoid?
 - Look out for uneven ground that may cause your vehicle to weave, bob or bounce;
 - Think about wind and temperature – they may affect the power line's height;
 - Never ride or climb on equipment or a load when near a power line;

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- Work around power lines to be done only during daylight hours;
- Don't ground your equipment around a power line;
- Do not allow equipment or objects to approach the overhead power line closer than the safe limit of approach specified;
- If work is being carried out near the safe limit of approach, use a trained signaller to act as an observer to ensure that the required distance is maintained. (Communication by radio or air horn);
- Do not place materials under or adjacent to the overhead power line if it reduces the clearance above ground required by O.H & S regulations. Contact the electrical utility for assistance to determine the required clearance between the power line and the ground;
- Do not allow excavations to reduce the support required for power poles. Contact the electrical utility to determine support required. Request line locates in case of grounding girds buried at the base of power poles;
- Remember electricity is invisible, don't take chances;
- Keep a safe working distance between your equipment and power lines – follow O. H. & S Regulations which require you to stay clear of power lines. Don't go too close with people or equipment.

The limits are outlined in the regulations. Depending on the voltage of the power line, you need to establish a safe working distance and make sure everyone follows the guidelines shown on page 4 for safe limits of Approach.

In an Emergency

Accidents can be prevented with "safety first" in mind. If you or a co-worker come into contact with an overhead line, remember:

- If you are alone and don't have a radio, stay in the vehicle until help arrives this is the safest place;
- Stay alert and keep other workers away from the area;
- Try to break contact with the lines by moving the vehicle at least 10m (32 feet) away;
- Don't try to break contact if the cable or equipment appears to be welded to the line – this could cause the line to whip or snap;
- Do not touch power lines with wood, the wood maybe damp and conduct electricity;
- If a line is on the ground, it could be charging the surrounding area. Stay back 30 feet from the line. As well, if a line is touching a piece of equipment, do not come near to the equipment or touch it. Never assume the breaker is open or the line is dead;
- Do not assume the lines are dead:
 - Transmission lines are on a 30-second breaker delay which reactivates three times;

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- A distribution feed line is two lines, one carrying power into the property and the second line carrying power back. If contact is made with both of these wires, it is fatal;
- Contact the electrical utility to turn off the power.

Fires and Power

In the event of a life threatening fire, jump clear and try to land as far away as possible (on both feet) without touching the equipment as you land. Do not, under any circumstance step down and allow part of your body to be in contact with the ground while any other part of your body is touching the machine.

Jump with both feet together maintain balance and hop as far away as possible. (Approximately 10 meters). Remember – you are still in danger even if you have cleared the vehicle – hop away to minimize the danger of electrical currents in the ground passing through your body. Do not take large steps because it is possible for one foot to be in a high voltage area and the other to be in a lower voltage area. The difference between the two can kill.

Reporting

If you strike a power line, call the electrical utility right away. Report the details of the incident. The utility will inspect and repair the area. You also need to report the incident to Occupational Health and Safety. The following applies under 1995 “General Safety Amendment Regulation”:

26(1) An employer shall ensure that no worker approaches and that no equipment is operated, and no worker shall approach or operate equipment, within 7 meters of a live overhead power line unless

- a) The worker is, or the operation is directed by, a competent utility employee with the meaning of the Electrical Utility Regulations (Alta. Reg. 44/76), or
- b) At least the following clearances, as set out in the following table, are maintained between the worker or the equipment and the overhead power line conductors:

This new provision comes from the Electrical and Communication Utility Systems Regulation (AR 44/76, 378/88) and provides consistency for both regulations.

TABLE 1 - SAFE LIMIT OF APPROACH DISTANCES FROM OVERHEAD POWERLINES FOR PERSONS AND EQUIPMENT

Operating Voltage of Overhead Power Line Between Conductors	Safe Limit of Approach Distance for Persons and Equipment
0-750 V Insulated or Polyethylene Covered Conductors (1)	300 mm
Above 750 V Insulated Conductors (1) (2)	1.0 m
0-40 kV	3.0 m
69 kV, 72 kV	3.5 m
138 kV, 144 kV	4.0 m
230 kV, 240 kV	5.0 m
500 kV	7.0 m

Notes:

(1) Conductors must be insulated or covered throughout their entire length to comply with these groups;

(2) Conductors must be manufactured to rated and tested insulation levels.

At all power line locations, "DANGER-POWER LINES" signs shall be installed before work commences. These signs shall be placed and maintained 25 meters (80 feet) on each side of the power lines in such a position that they may be seen from all equipment travelling the right-of-way or work site.

Violation of these practices or power line strikes could lead to prosecution under O.H & S. Regulations.