Safe Practices While Working Near Overhead Power Lines

A successful defense against electrical accidents is the continuous exercising of good judgment or common sense. All employees should be thoroughly familiar with the safety procedures for their particular jobs. When working near overhead power lines some basic procedures are:

- Survey the site for overhead power lines. **LOOK UP!**
- Plan your route of travel to avoid power lines.
- Consider all overhead lines as energized until the electric utility indicates otherwise, or an electrician verifies that the line is not energized and has been grounded.
- If a vehicle (concrete pump, mixer truck, raised dump truck, back hoe, etc.) must be moved in the area of overhead power lines, appoint a competent worker whose sole responsibility is to observe the clearance between the power lines and the vehicle. Warn others if the minimum distance is not maintained.
- Never touch an overhead line if it has been brought down by machinery or has fallen. Some lines have circuit breakers that may automatically reset.
- When a vehicle is in contact with an overhead line, **DO NOT** allow anyone to come near or touch the machine. Stay away from the machine and call 911.
- Nonmetallic materials such as lumber, tree limbs, tires, and ropes can conduct electricity.
- If using equipment near lines rated at 50,000 volts (50 kV) or less, the minimum distance between the energized lines and any part of the equipment must be at least 10 feet. Consult the table below for greater voltage/distance.

<table>
<thead>
<tr>
<th>Voltage Range</th>
<th>Minimum Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 kV - 200 kV</td>
<td>15 feet</td>
</tr>
<tr>
<td>200 kV - 350 kV</td>
<td>20 feet</td>
</tr>
<tr>
<td>350 kV - 500 kV</td>
<td>25 feet</td>
</tr>
<tr>
<td>500 kV - 750 kV</td>
<td>35 feet</td>
</tr>
<tr>
<td>750 kV - 1000 kV</td>
<td>45 feet</td>
</tr>
</tbody>
</table>

**If You Are in a Vehicle That Contacts a Power Line**

1. Most important, stay in the vehicle. Do not try to get out unless the vehicle is on fire.
2. If possible, remove contact by backing the vehicle away from the power line.
3. Use your cell phone or Nextel to call 911 or yell for others to make the call.
4. Make sure no one approaches the vehicle.
5. Do not leave the vehicle until the power company tells you the line is de-energized. You can never know for sure if the line is going to come back on or not.

**If the vehicle catches on fire**

1. Exit the vehicle very carefully - Do not touch the truck and the ground at the same time.
2. Jump out of the vehicle. Don’t worry about how far you jump, as long as you clear the vehicle. (explained in next section)
3. Be sure to land on both feet and keep your balance when you land. Those are more important than how far you away you jump.
4. Don't touch anything with your hands; use your hands for balance only.
5. Keep both feet on the ground at all times. Hop away from the vehicle - be sure to keep both feet together. Use your hands for balance only.
6. If you cannot hop, shuffle away - keep both feet on the ground at all times. Do not lift one foot off the ground to step forward. Instead, drag one foot forward keeping it in touch with the ground. If you step, you could become a conductor because your feet will move from higher electrical potential to lower potential as the electrical energy dissipates radially while you move away from the source.
7. Keep hopping or shuffling away until you get to where other people are standing safely.

**Ground Step Potential**

When an energized source of electricity (downed power line) comes in contact with the ground, the electrical current can pass through the ground. The voltage is strongest at the point where ground contact is made and becomes weaker as it radiates out from the point of contact. This phenomenon is called “ground gradient,” and is much like a series of irregular concentric circles expanding outward. If you were to walk toward the point of contact, current could pass into and up one leg and down and out the other. This is known as “step potential,” or the flow of ground gradient electricity through the body from one area of electrical potential to another area of electrical potential between your feet. Each area between these lines of concentric circles has a different electrical potential. This danger might first be identified by a tingling sensation in the feet. The step potential becomes even more severe when the ground is damp or wet.

![Diagram](image)

You are safe inside the vehicle as long as you don't step out and touch the vehicle and ground at the same time. Remember, the electricity is not only traveling through the metal of the vehicle but it is also traveling in the ground around the area.

AS A TITAN MIXER DRIVER, YOUR NUMBER ONE RESPONSIBILITY IS DRIVING SAFELY