

Electrical Safety for First Responders

Discussion Guide – Scenario 1

Introduction

Electrical Safety for First Responders is a series of information sessions on efficient, safe and effective responses to emergencies involving electricity. Each information session contains a video scenario accompanied by a discussion guide.

Key points

Discuss the role of the first responder when dealing with electrical emergencies:

- keep themselves safe
- keep the public safe
- wait to approach the scene until FortisBC has arrived on site and confirms it is safe

Important: electricity is a safe and efficient source of energy when properly controlled. Uncontrolled, it is extremely dangerous.

Video 1 scenario

Review the scenario presented in the first video. Have one of the participants summarize the video for the group.

Main points to summarize:

- A policeman responds to the scene of a car accident involving a downed power line - a car has crashed into a power pole, trapping the occupants inside. A downed power line is lying across the car.
- The officer rushes to help the occupants but in doing so he becomes a path for the electricity to flow to the ground, which kills him.

Site safety

Discuss the procedure to follow upon arriving at the site of an emergency involving electricity.

Ask participants to identify the important factors they saw in the video:

1. Perform a scene survey.
 - Park at least 10 meters away from fallen lines. (About the length of a school bus.)
 - Look for leaning poles, sagging wires and any wire ends (look for both ends).
 - Use a flashlight at night to check surroundings before exiting your vehicle.
 - Watch for other objects such as pipes, vehicles and fences that can become energized.
2. Assess potential electrical hazards. Ask yourself these questions:
 - Are electrical equipment or lines involved (underground or overhead)?
 - Is a downed power line part of the incident?
 - Is a downed power line touching or near equipment or the ground?
 - Is the power line broken or damaged? Always assume the power line is energized.
 - Stay a minimum of 10 metres away from the incident location.

3. Take control of the situation.
 - Encourage people to stay in the vehicle.
 - Contact FortisBC immediately.
 - Keep onlookers away from the scene (at least 10 metres).
 - If dealing with fire and the person in the vehicle is able to move, tell them how to safely exit a burning vehicle.
4. Wait to approach the scene until it's safe.
 - Do not become a casualty yourself.
 - Wait until FortisBC has arrived on site and tells you it is safe to approach the scene.

Touch potential

Explain the concept of touch potential:

- Touch potential is the difference in voltage between hands and feet when touching something energized while standing on the ground.
- A conducting object touching an energized source such as a power line causes electricity to flow to the ground.
- Touching an electrically charged object forces electrical current to flow through the person to the ground. It's the path of least resistance because it conducts more current. This can result in injury or death.

Important: no matter the source (natural or manmade), electricity always takes all conductive paths to the ground.

Electricity and the human body

Explain how electricity can impact the human body:

- Electricity will travel through a person to reach the ground.
- The amount of electrical current a person can withstand depends on a number of factors:
 - **time:** amount of time a person is exposed
 - **current:** the higher the current strength, the less exposure time a person can survive
 - **energy path:** a path through the heart or brain is more life-threatening

Important: Even low current traveling through the heart or brain can be potentially life threatening. Heat can also cause severe damage to the body.

Review the effects of electric shock:

- victim stops breathing
- ventricular fibrillation or cardiac arrest
- involuntary muscle reaction
- victim can't control muscles quickly enough to resist and can't let go
- electrical burns and nerve damage

Personal experience

Ask for personal experiences:

If participants have any personal experiences that are similar to the emergency situation shown in the video, ask them to share them with the group.

Wrap-up

Ask if anyone has further questions about this topic, and then distribute information sheets:

- Electricity Basics
- Electricity Awareness