



Paul Williams, Fire Chief

PURPOSE:

ECFR responds to reports of power lines down and other hazards involving energized electrical equipment (transformers, substations, electrical vaults) for fire control and public safety. It is the responsibility of the company officer to maintain an acceptable level of safety until relieved by a higher-ranking officer or utility company representative.

OBJECTIVE:

This procedure will establish a standard approach and response to the report of power lines down and other responses to energized electrical equipment. Power lines can come into contact with the ground as a result of equipment failure, adverse weather, fires, or vehicles striking power poles. In all cases, the potential for electrical shock/electrocution and secondary fire must be considered.

SCOPE:

All Personnel

ELECTRICAL SAFETY AWARENESS

Electricity will travel any conductive path it can as it seeks a ground. A direct path to ground can occur when contact is made between something energized and a portion of your body such as your hand, arm, head, or other body part. An indirect path to ground occurs when you are holding something or touching an object that is in contact with something energized. This could include tools or other equipment you may be holding or when touching a fence, vehicle, or other object that may be in contact with something energized.

Gradient Voltage (Step and touch potential)

When power lines are down, they will energize the ground around them. For example, point of ground contact could be 7160 volts. This voltage will lessen as it radiates out from this point. For example, 6000 volts. If your feet are in areas where there is a voltage difference, you could complete the circuit and be the source to ground. This is referred to as "step potential". This danger could be indicated by a tingling sensation in the feet and serve as a warning to back away from the area. Step potential is more severe when the ground is wet.

PROCEDURE

Downed lines must always be considered energized with potentially lethal current.

Lines can reset and become "hot" or "energized" again by manual operation of a switch, by automatic re-closing methods, by induction where a de-energized line can become hot if it's near an energized line, or through back feed conditions.

Power lines tend to have "reel memory" and may curl back or roll on itself when down.



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Use extreme caution when spraying water on or around energized electrical equipment. Hose streams conduct current; never spray directly into the power lines. Utilize a fog spray at the base of the pole. The primary responsibility is to protect the surrounding area. Short bursts of water are the preferred method to avoid being grounded. Never spray water onto electrical equipment until a utility company representative has confirmed that the equipment is "dead".

Electrical equipment has three classifications.

- Energized
- De-energized (cannot be 100% guaranteed)
- Dead (confirmed by a utility company representative)

PCB hazards: smoke is potentially fatal, avoid and contain pools of oil around transformers.

Poor soil resistance and asphalt may not provide enough of a ground to trip a circuit even when a conductor is laying on it.

You cannot tell the voltage of a power line by the size of the conductor. Most overhead conductors are not insulated.

Voltage can travel through both dry and especially wet ground for considerable distances.

Both the pad-mounted and overhead type transformers can explode.

Until grounded, equipment can contain electrical potential, which can cause severe injury or death.

Electricity can flow through the ground or other conductive objects, (fences) to points far from the scene

RESPONSE TO POWER LINES DOWN

Approach the area with extreme caution looking for low hanging lines that could come into contact with personnel or apparatus.

Request utility company to respond.

Consider all power lines to be "energized".

Place apparatus and personnel away from downed power lines and power poles and out from under involved overhead lines that could fail and fall onto equipment and/or personnel.

Secure the area/deny entry.



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During periods of high activity such as inclement weather, company officers may choose to leave the scene when there is no active arcing, fire danger, or imminent danger to others.

In the event of multiple lines/poles down over a large area, consider calling additional resources.

**RESPONSE TO POWER LINES ON AN OCCUPIED VEHICLE WITH VICTIMS
CONSCIOUS AND SAFE**

Follow the guidelines in "Response to Power Lines Down".

Request additional resources as needed.

Request utility company to respond and emphasize the need to expedite for occupied vehicles.

Do not touch the vehicle and approach with extreme caution. Company officers should completely survey the area for other dangers.

Clear the area/ deny entry of bystanders and unnecessary personnel.

Have occupants remain calm and inside the vehicle. Advise them that you are awaiting the utility company to arrive and secure the power.

Place apparatus and other personnel at a safe distance and location from downed lines.

If occupants must leave the vehicle (fire or other threat to life) instruct them to open the door, DO NOT step out! They should jump free of the vehicle without touching vehicle and ground at the same time, they should walk away from the vehicle with very small steps.

**RESPONSE TO POWER LINES ON AN OCCUPIED VEHICLE WITH VICTIMS
REQUIRING IMMEDIATE MEDICAL ATTENTION, EXTRICATION AND/OR VEHICLE ON
FIRE**

Follow the guidelines in "Response to Power Lines Down".

Request additional resources as needed.

Request utility company to respond and emphasize the need to expedite for occupied vehicles. If necessary, request the utility company cut the power to the area.

If fire suppression is necessary, utilize only dry chemical extinguishers.

Stretch attack line but do not use water it will conduct electricity.



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Await the utility company to de-energize the line before attempting rescue or extinguishment.

RESPONSE TO SUB-STATION, TRANSFORMER, ELECTRICAL VAULT, AND MANHOLE FIRE

Perform size-up and use extreme caution.

Request additional resources as needed.

Request utility company to respond.

Clear the area/deny entry and establish a safe zone.

Ensure that all personnel are aware of explosion potential.

Place apparatus and personnel in a safe location away from overhead power lines.

Protect exposures.

DO NOT make entry until the utility company representative has verified that the above electrical equipment has been de-energized. The utility company representative may have to make entry to uninvolved sections to safely de-energize the equipment.

Special considerations for manhole fires

- Keep fire personnel, apparatus, and bystanders a safe distance away from the manhole.
- Check nearby buildings for possible CO.
- Never pull a manhole cover.
- Never enter a manhole until deemed safe by utility company representative and Haz-Mat personnel.

RESPONSE TO POWER POLE FIRES

Follow the guidelines in "Response to Power Lines Down".

Request utility company respond.

Consider all wires and poles to be "energized".

Place apparatus and personnel away from downed lines and/or power poles and out from under involved overhead lines that could fail and fall onto equipment or personnel.

ESCAMBIA COUNTY FIRE-RESCUE

Standard Operating Guidelines

4100.090

Power Lines / Energized Equipment

Implemented: 10/22/20

Revised:

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Secure the area/deny entry.

DO NOT make any fire attack until the utility company representative has verified that the electrical equipment has been de-energized.

During such occasions when inclement weather persists creating numerous lines down/power pole fires and/or when there is tornado warnings effecting the area, the on-duty Battalion Chief may request that the emergency communications center prioritize service or investigative type calls and postpone dispatching fire crews to non-life threatening calls such as lines down/power pole fires. These type calls will be placed on a list and communicated to the appropriate power company. The on-duty Battalion Chief can resume responses once the weather has passed or subsided to safely deploy units.