3.2.2.7 Special Units

	YOUR ORGANIZATION STANDARD OPERATING PROCEDURES/GUIDELINES

TITLE: Special Units	**SECTION/TOPIC:** Company Operations
NUMBER: 3.2.2.7	**ISSUE DATE:**
	REVISED DATE:
PREPARED BY: X _____ Preparer	**APPROVED BY:** X _____ Approver
These SOPs/SOGs are based on FEMA guidelines FA-197	

1.0 POLICY REFERENCE

CFR	
NFPA	
NIMS	

2.0 PURPOSE

This standard operating procedure/guideline addresses duties and responsibilities of units needed to perform special functions, such as rescue units, cascade systems, lighting units, and grass-fire units.

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 in contact with the ground as a result of storm related activity, fire, or vehicles striking power poles. In all cases, the potential for electrical shock/electrocution and secondary fire must be considered.

3.0 SCOPE

This SOP/SOG pertains to all personnel in this organization.

4.0 DEFINITIONS

These definitions are pertinent to this SOP/SOG.

5.0 PROCEDURES/GUIDELINES & INFORMATION

5.1 Duties and responsibilities of units needed to perform special functions:

It is our policy to respond to reports of power lines down and other hazards involving energized electrical equipment (transformers, substations, electric vaults) for fire control and public safety. It is the responsibility of the company officer to maintain that level of safety until relieved by another fire company, police agency or utility company.

ELECTRIC 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 called “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.

Key Points

- 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 (either method from short or long distances away), by induction where a de-energized line can become hot if it’s near an energized line, or through back feed conditions.
- Power line tends to have “Reel Memory” and may curl back or roll on itself when down.
- Use caution when spraying water on or around energized electrical equipment. Hose streams conduct current! Never spray directly into the power lines. Use a fog spray at the base of the pole. Your primary responsibility is to protect the surrounding area. Short bursts of water are preferred methods to avoid being grounded. Never spray water onto electrical equipment until a utility rep has confirmed that the equipment is de-energized or “dead.”
- Electrical equipment is classified as:

- Energized
- De-energized (cannot be 100% guaranteed)
- Dead (confirmed by utility representatives after grounding the lines(s).

- PCB hazards: Smoke potentially fatal; avoid and contain pools of oil around transformers.
- Poor soil resistance in the desert southwest 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.
- Pad-mounted and overhead transformers can explode.
- Until grounded, equipment can contain electric potential, which can cause severe injury or death.
- Electricity can flow through the ground or other conductive objects, (fences) to point far from the scene.

RESPONSE TO POWER LINES DOWN

- Request utility company to respond.
- Consider all down wires as “energized.”
- Place apparatus away from “down lines and power poles” and out from under involved overhead lines that could fail and fall onto equipment or personnel.
- Secure the area/deny entry.
- Periods of high activity; company officer may choose to leave one (1) crewmember on-scene with a radio to wait for utility company.
- In the event of multiple lines/poles down over a large area, call additional resources.

Down Power Lines and Vehicles

- Request utility company to respond.

- Do not touch vehicle
- Have occupants remain inside the vehicle
- Place apparatus a safe distance away from down lines.
- If occupants must leave the vehicle (fire or other threat to life) instruct them to open the door, 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.

SUB-STATION, TRANSFORMER, ELECTRICAL VAULT AND MANHOLE FIRE

- Request utility company to respond.
- Clear the area.
- Be aware of explosion potential.
- Place apparatus in a safe location away from overhead power lines.
- Protect exposures.
- Do not make entry until the utility representative has verified that the above electrical equipment has been de-energized. The utility representative may have to make entry to uninvolved sections to safely de-energize the equipment.

RESPONSE TO POWER POLE FIRES

- Request utility company to respond.
- Consider all wires and poles as “energized.”
- Place apparatus away from “down lines and power poles” and out from under involved overhead lines that could fail and fall onto equipment or personnel.
- Secure the area/deny entry.
- Do not make any fire attack until the utility representative has verified that the electrical equipment has been de-energized.

5.2 Rescue Units:

5.3 Cascade Systems:

5.4 Lighting Units:

5.5 Grass-Fire Units: