Pleasant Valley Fire District

Standard Operating Guidelines

SOG #23 – WIRES DOWN AND/OR ENERGIZED ELECTRICAL EQUIPMENT

PURPOSE: This guideline 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.

NOTE: It is our policy to respond to reports of power lines down and other hazards involving energized electrical equipment (transformers, substations, electric vaults, etc.) for exposure fire control and public safety. It is the responsibility of the OIC to maintain that level of safety until relieved by a police agency, Central Hudson Gas & Electric, Con Edison Company of NY or their authorized representative.

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.

GUIDELINES:

1. Downed lines must always be considered energized with potentially lethal current. **STAY AWAY!**

2. 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.

3. Electrical equipment is classified as:
   - Energized
   - De-energized (cannot be 100% guaranteed)
   - Dead (confirmed by utility representatives after grounding the line(s).

4. 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 in an emergency. 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 representative has confirmed that the equipment is de-energized and dead.

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

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

7. Pad-mounted and overhead transformers can explode.

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

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

10. PCB hazards: Smoke potentially fatal; avoid and contain pools of oil around transformers.

RESPONSE TO POWER LINES DOWN:

1. Request Central Hudson Gas & Electric to respond.

2. Consider all down wires as "energized."

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

4. Secure the area and deny entry.

5. Remember, some painted road markings may conduct electricity.

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

DOWN POWER LINES ON VEHICLES:

1. Request utility company to respond expeditiously.

2. **Do not** touch vehicle.

3. Have occupants remain inside the vehicle.

4. Place apparatus a safe distance away from down lines.

5. If occupants must leave the vehicle (fire or other threat to life) instruct them to open the door, not step-out! They should perform a "two feet jump". Instruct them to 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.

TRANSFORMER FIRE:

1. Request utility company to respond immediately.

2. Clear the area.

3. Be aware of explosion potential.

4. Due to toxic by-products produced by Polychlorinated Biphenyls (PCB) fires, place apparatus in a safe location away, upwind from overhead power lines. If unable to place upwind any members operating in plume of smoke should be in a SCBA.

5. Protect exposures.

RESPONSE TO POWER POLE FIRES:

1. Request utility company to respond.

2. Consider all wires and poles as "energized."

3. 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.

4. Secure the area and deny entry.

5. Do not make any fire attack until the utility representative has verified that the electrical equipment has been de-energized and grounded.

SUBSTATION FIRE

1. Wait outside the gate. **Do not make entry into the substation** until the utility representative on location (Central Hudson Gas & Electric or Consolidated Edison) has verified that the electrical equipment has been de-energized and deems it safe to enter, following the utility's representative.

2. In Consolidated Edison's Substation, the Station Incident Commander will meet the fire department at the gate. They will be identified by the wearing of a white hardhat.

3. Due to toxic by-products produced by PCB fires, place apparatus in a safe location away, upwind from overhead power lines. If unable to place upwind any members operating in the plume of smoke should be in a SCBA.