



## ELECTRICAL FIRE RESPONSE

### SCOPE

This guideline shall apply to all members of the Stoney Point Fire Department and shall be adhered to by all members.

### PURPOSE

To establish the procedures for effective and safe response to electrical hazard incidents.

### DEFINITIONS

**Amperage or Current** - amount of electrical charge flowing past a given point per unit of time, measured in amperes or amps. Amperage is the measure of electrical current flow

**Electricity** - flow of electrical charge through a conductor placed between two objects having a different voltage

**Guideline** - a general rule, principle, outline of a policy

**Member** – any career, volunteer, staff, and auxiliary personnel affiliated with the department

**Shall** - indicates a mandatory requirement

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### GUIDELINES

Incidents involving electrical hazards pose a unique threat to emergency response personnel. It is imperative that all members of Stoney Point Fire Department understand the proper management of potential electrical hazard incidents. Every Firefighter shall maintain situational awareness throughout every emergency response to ensure the safety of all personnel at the incident. Each member of Stoney Point Fire Department shall treat every wire that is observed at an incident as a charged power line.

There are many potential electrical hazards throughout the Stoney Point Fire Department's response area. These range from the obvious overhead powerlines, to a solar energy farm, to household outlets and electric vehicles. Each of the corresponding utility companies have trained linemen on call 24 hours a day to assist in electrical emergency incidents. Incident Commanders shall request that the appropriate utility company be notified by Dispatch for a response to assist in mitigating the hazard. Firefighters shall not attempt to mitigate any electrical hazard without verifying that the power has been disconnected.



### Size Up

Upon dispatch to a known electrical hazard, the Incident Commander shall request utility company support through Dispatch. Upon arrival at an incident with a potential electrical hazard, the Incident Commander shall perform an incident scene size up. The Incident Commander shall complete a 360-degree survey of the scene, including looking up for powerlines to identify all existing hazards and threats and establish command. **“City, this is 1331, on scene of a single vehicle collision with a utility pole with wires down, contact PWC to shut down power to Pole P123456, 1331 will be Dundle Command”** or **“Cumberland, 1932 is on scene of a single family residential structure, heavy fire showing from side D, contact Lumbee River to disconnect the meter, 1932 will be Camden Command”**.

Always assume that wires are charged. Establish a safety zone, monitored by an assigned Incident Safety Officer, around exposed electrical sources until verified.

### Establishing Safety Zones

Damaged power poles, downed wires, damaged or downed electrical conductors, insulators, or transformers require that the Incident Commander establish a safety zone. The safety zone delineates the area of potential electrical hazards and all personnel shall be kept out until the hazard has been mitigated and verified. The safety zone shall be visibly marked with caution tape and have personnel spaced around the outer edge to prevent others from entering the safety zone.

The dimensions of the safety zone for overhead electrical lines shall be one full pole from the damaged wires. The safety zone shall be expanded whenever additional hazards exist, such as wet conditions, or if fences, guardrails, or rail tracks are involved. Additionally, if upon inspection, other poles or towers appear likely to fail the safety zone should be adjusted to accommodate the additional hazards. Firefighting personnel assigned to a specific task that must enter the safety zone shall wear full personal protective gear, have back up personnel in position, back up attack lines or other extinguishing agents nearby.

### Disconnecting Electrical Service

In the event of a structure fire or other emergency where it would be impractical to wait for a utility company representative, electrical service can be disrupted locally at the service disconnect panel (fuse box). Circuit breakers can be turned off to disconnect electricity to the affected area, making firefighting or rescue efforts safer. **Disconnect switches or circuit breakers should not be operated unless the Firefighter, floor, and service disconnect panel are all dry. Firefighters shall not enter a flooded basement or room to disconnect electrical service.**

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### **Cutting Wires and Pulling Meters**

At no time will Stoney Point Fire Department personnel engage in disconnecting (“pulling”) electrical meters, cut electrical wires, or open transformer switches. Pulling an electrical meter can create an electrical arc and may even create an explosion. The electrical arcing and potential explosion can severely injure or kill personnel nearby. Removing an electrical meter exposes high voltage contacts that present a significant shock hazard to personnel working within the vicinity. Many electrical services, especially services that carry current that exceeds 200 amps. Disconnecting these meters does not disconnect the electrical supply.

### **Downed Wires**

There are many scenarios that may produce or result in a downed electrical wire. Among these are high winds, automobile accidents, falling tree limbs and deliberate acts. Fallen electrical wires pose many hazards to emergency responders. These hazards may be exacerbated by the items that the fallen wire contacts. The energized wire may land on a vehicle, in a pool of water, on a metal fence, on a metal structure, or directly on the ground. Firefighters shall assume that all wires are energized and pose a threat.

It is important to understand that power must be disabled from both directions to ensure that the wire is not being energized from both ends. Firefighters shall not touch a downed wire, even after being informed by the utility company that it is de-energized. Utility company personnel shall remove the wire.

### **Electricity and Firefighting Operations**

Upon arrival at a fire scene, the Engineer and Officer shall exercise caution when positioning their apparatus. Every effort shall be made to avoid placing the apparatus directly under any overhead powerlines. All personnel assigned to an incident operating should always be alert for potential electrical hazards, including downed wires. External lighting and flashlights shall be utilized when conducting the 360-degree survey to identify all hazards, including electrical sources. A request shall be made to have the utility company “pull the meter”, or assignment of personnel to disconnect the fuse box to limit electrical hazard exposure.

Caution shall be exercised when deploying attack lines to extinguish fires in the vicinity of electrical sources. Fog nozzles set to a 30-degree spray pattern shall be used to extinguish these fires. Firefighters shall remain at least 35 feet away from the electrical source and fire while conducting firefighting operations.

Utilize Carbon Dioxide (CO<sub>2</sub>) and Dry Chemical extinguishers whenever rescue is an immediate priority and electricity status cannot be confirmed.

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## Programs

## Standard Operating Guidelines (SOG)

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Fires at solar power generation farms or residential applications present unique challenges. The solar panels become electrically charged by any light source and contact with them should be avoided at all costs. It is important to strictly adhere to safety protocols and maintain a safe distance from all solar power generation structures when conducting fire suppression operations. Panels, conduits, inverters, and battery banks are all sources of potential electrical hazard. Water shall be applied as a last resort and follow the 30-degree fog pattern and 35 feet distance rules.

When transformers or other electrical devices are involved, protect exposures, and allow the device to burn until power can be shut off and verified. Position apparatus two poles away for overhead wire fires.

The use of ground ladders can also create electrical problems. Care shall be taken in the proper positioning of ground ladders away from electrical sources, such as overhead wires and electric meters. Overhead clearance shall be observed to prevent an accidental ground ladder strike upon exposed or hidden overhead wires.

### Overhaul Operations

When conducting overhaul operations it is important to be situationally aware of hidden electrical wires. Care should be exercised when cutting holes in walls and ceilings to expose hidden heat sources.

### Summary

Important reminders for all personnel responding to an electrical hazard emergency.

- Have Dispatch contact the appropriate utility company immediately
- Assume all wires and electrical sources are energized
- Establish a safety zone and prevent unauthorized entry throughout the operation
- Keep bystanders away from the emergency scene for the safety of all involved
- Exercise extreme caution when approaching a potential electrical hazard emergency and throughout the incident

### References

NFPA 850

Electrical Safety Handbook for Emergency Responders

20 Keys to Electrical Fires and Emergencies

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