Your Touchstone Energy® Cooperative

WITHLACOOCHEE RIVER ELECTRIC COOPERATIVE, INC.

# Employee Safety Manual

**Withlacoochee River Electric Cooperative Inc.**
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*"There is no job so important that we cannot take the time to do it safely."*

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# APPLICATION AND RESPONSIBILITY

## 1. Federal Regulations

When OSHA (Occupational Safety and Health Administration) was formed in 1970, public law also established that the responsibility for accidents is shared by the employer and the employee. This rule has come to be known as the "General Duty Clause" and is quoted as follows:

**Public Law 91-596**

Section 5(a) Each Employer –

1. Shall furnish to each of their employees' employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.
2. Shall comply with occupational safety and health standards promulgated under this Act.

Section 5(b) Each Employee –

1. Shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act, which are applicable to his own actions and conduct.

## 2. Application and Responsibility of Safety Rules

These safety rules are intended to provide general safety protection for all Withlacoochee River Electric Cooperative employees. Other rules, policies, and operating procedures may apply to specific job duties as well, and it shall be the responsibility of each employee to become familiar with all aspects of an individual task before beginning work.

An accident is an unexpected or unplanned event that interrupts or interferes with the orderly progress and completion of an activity or a production process and may or may not include property damage or personal injury. Many accidents are due to unsafe conditions and can be minimized with periodic inspections and preventive maintenance. The majority of accidents, however, are due to unsafe acts and human failure. It is the responsibility of WREC and of every employee to comply with the safety and health standards and all rules which are applicable to their own actions and conduct.

This manual has been prepared for the guidance and safety of all employees. Strict observance of safety rules is necessary to prevent accidents; lack of enforcement or repeated flagrant violations of rules can only result in accidents with accompanying injury and economic loss.

## 3. Supervisory Responsibility for Safety

A. Each supervisor shall have the responsibility to ensure that an employee is qualified for an assigned task and the authority to suspend any work deemed unsafe for any reason that includes but is not limited to, illness, injury, drugs (prescription or otherwise), intoxicants, extreme emotional upset, or similar conditions.

B. Employees serving in a supervisory capacity, either regularly or temporarily, shall require all employees working under their supervision to comply with all applicable safety rules and shall use disciplinary measures if necessary to compel their observance.

C. Each employee shall carefully study, not merely read, the safety rules applying to their duties. Safety rules shall be obeyed; ignorance will not be accepted as an excuse for their violation. Employees may be periodically examined on their knowledge of the rules.

D. If an employee is called upon to perform work that they consider hazardous, they shall bring the matter to the attention of the supervisor before commencing work. If questions arise, interpretation rests finally with the supervisor as long as that interpretation complies with standard procedures and existing safety rules.

E. These rules represent minimum requirements and are intended only to cover average conditions. Since it is impracticable to cover all conditions and emergencies, the earnest cooperation of all employees with their supervisors is requested in meeting situations not covered in these rules.

F. In case of an emergency that may result in physical harm or death to employees or the general public, the employee in charge may modify or suspend any of these rules as they may consider temporarily necessary to permit proper handling of the specific emergency. (This shall not be interpreted to mean that speeding up the work process will be an acceptable reason for suspension of any rules or operating procedures.) In any case, the person so acting shall be fully accountable for their actions.

## 4. Employees' Responsibility for Safety

A. It is the responsibility of each employee to accept safety as a personal matter and to cooperate in the safety program by developing safe work habits and reporting hazardous working conditions to the appropriate person. Employees are expected, as part of their job, to take an active part in the cooperative's safety program and apply it in their everyday work.

B. Before proceeding with a job, the employee shall satisfy himself that they can perform the work without injury. If they are assigned work that they are not qualified to perform, they shall call this to the attention of their supervisor.

C. Before starting a job, each employee shall thoroughly understand the work to be done, their part in it, and the safety rules that apply. Job Briefings are mandatory and must be documented.

D. Experienced employees have extra responsibilities for conducting work safely for themselves and newer employees. Their attitude and behavior are part of the "on-the-job training" all new employees receive.

E. Employees violating recognized safety rules, procedures, or standards or the provisions of this safety manual or acting in such a manner as to endanger their own or another's personal safety shall be subject to disciplinary action, which may include warnings, suspension, or discharge. Please reference the Employee Handbook for disciplinary actions and types of offenses.

F. It is the employee's responsibility to act so as to provide the following:

1. Safety to yourself.
2. Safety to your fellow employees.
3. Protection to the public.
4. Protection of company property.

G. Employees shall not engage in practical jokes or "horseplay."

## 5. WREC's Basic Life-Saving Rules (LSR)

LSR-01 A job or task shall not be conducted unless the employee has been trained or has the skills and experience to perform safely.

LSR-02 Prior to the start of a job, or if conditions change, a job briefing will be conducted by the person in charge in collaboration with all relevant employees; this job briefing will be documented. See the Job Briefings section.

LSR-03 Personal Protective Equipment (PPE) is vital to safety and shall be worn; if an injury occurs as a result of failure to wear the proper PPE, this action will be considered an unsafe act.

LSR-04 An employee shall wear the appropriate and designated clothing systems and Personal Protective Equipment (PPE) based on the calculated Hazard Risk Categories for arc flash protection.

LSR-05 An employee shall not operate damaged, broken, or defective equipment, tools, and/or vehicles (if the vehicle has been deemed unworthy of road travel.)

LSR-06 An employee shall use tools and equipment only for the purpose for which it was designed; an employee shall not modify a tool or a piece of equipment from the original design without proper approval from the foreman or supervisor.

LSR-07 Manufacturer's safety interlocks shall not be tampered with or altered in any way that renders the safety function inoperable.

LSR-08 An employee shall not operate a vehicle, equipment, or tools without proper authority and with the proper knowledge, experience, or training.

LSR-09 When backing a vehicle or operating a vehicle, and two or more employees are present, one person will be designated the spotter and carry out the expected duties.

LSR-10 Fall arrest or positioning devices shall be used when employees are exposed to a fall in excess of four (4) feet.

LSR-11 All electrical equipment shall be considered energized at full line potential unless isolated, tested for potential voltage, and grounded. Failure to test for potential voltage will be considered an unsafe act.

LSR-12 Seatbelts must be worn when operating a vehicle equipped with them.

LSR-13 A qualified employee shall maintain positive control of energized lines while the lines are being moved.

LSR-14 Before lifting a bucket out of its stowed position, the employee occupying the bucket shall be responsible for ensuring all tasks required to place an aerial device in an operating position have been completed.

LSR-15 No employee shall occupy an aerial device while the vehicle is in motion unless the bucket is stowed and slowly traveling a short distance (pole to pole).

LSR-16 No employee shall ride on the tines of a forklift unless the person is in an approved lift.

LSR-17 Only employees who have been properly trained on the hazards associated with confined or enclosed space work shall be allowed to enter a confined space or enclosed space.

LSR-18 No employee shall stand beneath suspended loads.

LSR-19 An employee shall report injuries, near-misses, property damage, and/or vehicle accidents without delay and as soon as practical to their supervisor.

LSR-20 The wearing of electrical rubber gloves is a primary form of protection from electricity. Properly rated rubber gloves shall be worn when working on lines or equipment that are normally energized at 50 volts or more. Exceptions may be obtained only after making such a request to a person in charge prior to any action.

LSR-21 An employee shall not use controlled substances and/or alcohol while on duty, shall not report for duty while under the influence of controlled substances and/or

alcohol, and shall not be relieved by another employee known to be under the influence of controlled substances and/or alcohol.

LSR-22 An employee shall conduct a visual inspection of trenches and excavations for signs of possible cave-ins, failure of protective systems, or other hazardous conditions.

## 6. WREC's Critical Safety Rules

The safety rules in this section are identified by red print and defined as "Critical" for their importance in preventing serious injury or fatality if not followed. There are zero exceptions to these rules, and strict observance is mandatory.

CSR-01 Job Briefings or tailgates shall be standard practice before any work is begun or at any time during a process when unusual conditions are encountered, or other workers arrive to help. Reference Section 7.

CSR-02 Injuries and incidents, no matter how slight, shall be reported to the person in charge as soon as possible. Reference Section 8.

CSR-03 Employees working from an aerial device shall wear a body harness with a lanyard attached to the unit in accordance with the manufacturer's recommendations. They shall not belt to an adjacent pole or structure. A flame-resistant (FR) harness and lanyard are required for any live-line work.

CSR-04 Properly rated rubber gloves with protectors must be worn by employees when:

1. Involved in work within ten (10) feet of reach or extended reach of any energized primary conductor or equipment.
2. Contacting any energized secondary conductor or equipment outside of the ten (10) foot primary rules (see #1 above). Note: When low-voltage rubber gloves are used, they must be used outside of the ten (10) foot primary rule. High-voltage gloves must be used anytime within ten (10) feet of the primary, regardless of the work to be performed.
3. Repairing neutral conductors.
4. Operating manually controlled switches from the ground, such as ground-operated air break switches (GOAB). This does not include handless air break switches.
5. Pulling in wires or handling other conducting materials near circuits, apparatus, or equipment which is, or that may become energized.
6. Working on or near telephone or other circuits (electric, telephone, cable TV, WREC owned fiber) which are subject to induced voltages from energized high voltage circuits, unless such circuits to be worked are adequately grounded.
7. Installing or removing meters from energized meter sockets.
8. Employees shall put on and take off rubber gloves in a position in which they cannot reach into the established ten (10) feet distance.
9. Employees shall wear rubber gloves from lock to lock while working with any energized underground equipment. Equipment shall be considered energized until positively proven dead by testing and grounding.

10. Any URD equipment or enclosure is visually damaged or rearranged in any way.

CSR-05 When work is to be done on or within the minimum approach distance of any energized distribution primary lines, all energized and grounded conductors within reach or extended reach of any part of the body shall be covered with protective equipment, except that part of the conductor on which the employee is working.

CSR-06 Employees shall put on and take off rubber gloves in a position in which they cannot reach into the established ten (10) feet distance.

CSR-07 A live-line tool (hot stick) with a minimum length of four (4) feet shall be used when performing cable switching, installing, removing, or positioning a cable termination or when installing grounding cables. When a situation arises that two (2) people are needed for the operation of the live-line tool (hot stick), an eight (8) foot live-line tool (hot stick) is mandatory.

CSR-08 Before work is performed on or near energized lines or equipment, or if there is a possibility of the lines or equipment becoming energized, the employee shall remove all conductive articles or render them non-conductive. Gold chains or any other exposed conductive jewelry shall not be worn by employees exposed to energized work.

CSR-09 Hotline-Tag shall be used:

1. When any live-line gloving is performed.
2. Reaching through any covered multi-phase conductors.
3. Setting poles near or adjacent to energized conductors.
4. When contractors are working within ten (10) feet of any energized conductors.
5. By the control center when a report of a vehicle versus pole is reported.
6. Other circumstances may arise that warrant a hot-line tag and shall be used as necessary or at the Journeyman's discretion.

CSR-10 Face shields shall be worn when working in meter cans or panels, when installing or removing meters, checking voltage, and when installing an eagle recorder in an underground transformer or pedestal.

CSR-11 Dielectric Tests:

1. No test interval may exceed ninety (90) days for gloves and sleeves.
2. No test interval shall exceed six (6) months for all insulating blankets, hoods, line hoses, and other protective cover-up materials.
3. No test interval shall exceed twelve (12) months for all extend-o-sticks, hot sticks, switching sticks, and all other rated insulated equipment.

CSR-12 All grounds, including personal grounds and equipment grounds, must be tested annually by an independent testing laboratory, and must be identified with proper labeling. Test intervals shall not exceed twelve (12) months.

CSR-13 Supervisors shall ensure that proper eye and face protection is not only provided but is worn in all applicable circumstances.

7. Job Briefings

A. Job Briefings or tailgates shall be standard practice before any work is begun or at any time during a process when unusual conditions are encountered, or other workers arrive to help.

B. The Job Briefing shall be documented for future reference. This should be done on the Federated SAFE App. If the SAFE App is unavailable, then a paper document shall suffice.


C. Only one job briefing is required before the start of the first job of each day if the work or operations to be performed during the workday are repetitive and similar. Additional job briefings shall be held if significant changes, which might affect the safety of employees, occur during the course of work.

D. Job Briefings are mandatory and must be documented.

8. Reporting Employee Injuries and Incidents

A. Injuries and incidents, no matter how slight, shall be reported to the person in charge as soon as possible. A written first report shall be made to the employee's supervisor as soon as possible for injuries, property, or equipment damage.

B. All minor injuries shall be properly treated, and a written report is to be given to the employee's supervisor as soon as possible.

C. When the services of a physician are necessary, a physician designated by the company shall be used whenever possible. Such injuries shall be reported to management (**immediately**) on the day the injury occurs.

D. In the case of electrical contact by an employee or any life-threatening injury (i.e., severe bleeding, amputation, etc.), Emergency Medical Services (EMS) shall be contacted immediately. The accident shall be reported immediately to the department head, Manager, and the safety department.

E. Failure to report on-the-job injuries or intentionally falsifying reports may result in serious disciplinary actions.

F. All animal bites shall receive medical attention and must be reported to the proper authority by the supervisor.

G. Any employee administering first aid shall report details of the incident to the supervisor immediately. A written report should be made if the first aider comes in contact with the injured person's body fluid.

H. Only person(s) with adequate First Aid, CPR, and AED training may render aid.

1. First Aid, CPR, and Bloodborne Pathogens Kits or stations shall be readily available at each work location, meet all applicable standards, and adequately serve the anticipated emergency needs.
2. Kits or stations have a checklist and corresponding supply of critical items that match the user training levels for handling First Aid, CPR, and bloodborne pathogen-type emergencies.
3. Employees shall be familiar with the location of these kits or stations and also be familiar with the use of the equipment and supplies.
4. First Aid kits must be clean and well-organized, and the equipment and supplies must be inspected monthly in preparation for emergency use.
5. First Aid, CPR, and AED training must be completed every two (2) years for all employees susceptible to situations where emergency needs may be anticipated.

I. Automatic External Defibrillators (AEDs) shall be available for cardiac emergencies, ready for an emergency, and inspected monthly in facilities and all line trucks.

J. Plumbed eyewash and/or body drenching equipment must be present in areas with chemical hazards and ready for emergency use if water is available.

1. "Ready for emergency use" includes a weekly operational inspection, documented.
2. "Readily available" is defined as "within ten (10) seconds" of the hazard zone or work activity that a unit is intended to cover.
3. Water at plumbed equipment is supplied for a minimum of fifteen (15) minutes of continuous flushing and meets the current required temperature range (between 60° and 100° F) throughout the flushing/drenching cycle.
4. When eyewash is warranted, self-contained/portable eyewash equipment shall be available for emergency use when a water supply is not.

## 9. Safe Driver Plan

**Introduction**

Withlacoochee River Electric Cooperative believes the potential for injuries and lawsuits can be reduced by having a plan that assures we do not hire or allow any person to drive a Withlacoochee River Electric vehicle who does not have an acceptable driving record.

**Qualification**

In order to qualify for and remain employed by Withlacoochee River Electric Cooperative, every driver of a company vehicle and/or every driver of a personal vehicle on company business must establish and maintain an overall driving record that exemplifies careful driving habits and meets the criteria prescribed by this plan.

**Effective Date**

This plan supersedes all preceding plans and is effective immediately.

**Plan**

The plan applies to all drivers of any Withlacoochee River Electric Cooperative vehicle, regardless of what type of driving license and endorsement classification.

**A. Motor Vehicle Report (MVR) Review**

It shall be the responsibility of the MVR Review Committee (Director of Operations, Safety and Training Director, Human Resources Manager, and the appropriate department head) to obtain and evaluate MVRs as follows:

1. MVR Review Committee
   - During post-accident analysis of on-the-job vehicle accidents.
   - Random audits to ensure the maintenance of acceptable driving records.
   - As necessitated upon notification of any violation reported by employees or management.
2. HR Officer and Department Head
   - New hires (according to minimum standards).
   - Reassignment to a position requiring the driving of a company vehicle.
   - At the time of performance reviews for any driver of company vehicles.

**B. Driver's Responsibility**

1. It shall be the driver's responsibility to stay abreast and understand all Federal and State laws and regulations applicable to their driving license privileges.
2. It is the responsibility of all drivers included in this plan to report immediately, before leaving the scene, any accident in which they are involved in as the driver of a Withlacoochee River Electric owned vehicle.
3. It is the responsibility of all drivers included in this plan to report the occurrence of the following events no later than the end of the next working day:
   - All citations they receive as the driver of a Withlacoochee River Electric owned vehicle.
   - All evidence of damage to a Withlacoochee River Electric owned vehicle.
   - Suspension or revocation of driver's license.

   Failure to report as required above or making a false or misleading report may be grounds for termination of employment.

**C. Minimum Standards for New Hires (based on the most recent three-year MVR)**

1. An applicant must have a valid license to operate the type and class of vehicle they will be permitted to drive. If required, a new hire will be allowed ninety (90) days to obtain a CDL permit with the proper endorsement.
2. Must have no restrictions that would prevent them from legally or safely operating the assigned vehicle.
3. Must have no convictions of major or capital offenses (DWI/DUI, vehicular homicide, reckless driving, hit and run, or other flagrant infractions).
4. No more than two (2) at-fault or chargeable accidents.
5. No more than three (3) ordinary traffic violations.
6. No more than two (2) violations in the past twelve (12) month period.
7. Remedial Action
8. Appropriate action shall be taken depending on the number of incidents an employee has accumulated in their three-year MVR. An incident includes traffic citations and chargeable accidents.

| **Number of Incidents** | **Corrective Action** |
|---|---|
| One incident in three years. | Documented Verbal Warning<br>Review company policy and defensive driving rules. |
| Two incidents in three years or more than one incident in one year. | Corrective Discipline: Verbal<br>Review company policy and optional attendance of a driving improvement course. |
| Three incidents in three years or two chargeable accidents in three years. | Corrective Discipline: Written<br>Review company policy and mandatory attendance of a driving improvement course. |
| Additional incidents while on written probation. | Loss of driving privileges.<br>Corrective Discipline: Suspension for up to 3 Days or termination. |

| | |
|---|---|
| Suspension or revocation of driver's license. | Loss of driving privileges.<br>Corrective Discipline: Suspension for up to 3 days or termination. |

Effective with the adoption of this plan, current employees' three-year MVR will be evaluated, and if needed, appropriate remedial action will be taken.

## 10. Reporting Company Vehicle Accidents

A. The driver shall report accurately and immediately every accident to a vehicle in their possession. Additional reports shall be made to the police or state authority as required.
B. The driver shall not discuss or argue the causes or results of an accident with other parties but shall secure all pertinent facts and information. They shall answer questions when asked by proper authority, but under no circumstances shall they admit fault or negligence or sign any statement for anyone except proper representatives of the Cooperative.
C. Should the other driver demand immediate action, they shall be referred to the employee's supervisor.
D. The driver, when involved in an accident, shall stop, and give their name and address and the employer's name and address. They shall also secure the name and address of others involved in the accident and witnesses to the accident (which is very important).
E. The driver shall note the position of the vehicle after the collision in reference to the edge of the road, sidewalk line, center of an intersection, etc.
F. If any person is injured as the result of a vehicle accident, employees shall see that necessary emergency aid is provided.
G. Employees and/or Supervisors are expected to take photos of accident scenes, including the damage, identification, and associated circumstances.

## 11. Office and Clerical Work

A. Employees shall immediately report all accidents or injuries to their supervisor(s).
B. It is the responsibility of the supervisor and employee to make sure employees are familiar with their own department's Emergency Action Plan (EAP), the nearest exits, the location and use of fire extinguishers, safety data sheets (SDS), and first aid equipment.
C. All emergency exits and emergency equipment, such as fire extinguishers and electric breaker panels, shall be kept clear of all obstructions.
D. Hallways, aisles, and stairs shall be kept clear of all obstructions.
E. Caution shall be exercised when walking around blind corners.
F. Offices, file rooms, break rooms, and other common areas shall be kept free of tripping hazards such as electric extension cords, waste baskets, boxes, and cartons.
G. Desk drawers, cabinet doors, slides, and files shall not be left open while unattended.
H. Sharp-pointed pins shall not be used for fastening paper together. Staples, paper clips, or other approved fasteners shall be used.
I. Broken glass or other sharp-edged objects shall not be placed in wastebaskets unless properly protected.
J. Approved type ladders or other safe supports shall be used to reach material on high shelves or at other similar locations. Boxes, crates, chairs, etc., shall not be used to stand on. All facilities and vehicle ladders shall be kept in good condition, clearly labeled with commercial class and capacity ratings, and the step-up instructions are clear and legible. A straight ladder should extend at least three (3) feet past its support point. Ladders are to

be tied down as close to the support point as possible. If a ladder is positioned by a door or walkway, the door must be locked, or the walkway is to be barricaded to prevent collisions.

K. Housekeeping is given regular attention; work areas are neat, orderly, and free from obvious hazards.

L. Hand trucks or handcarts shall be available and suitable for handling materials commonly stored in each area. Hand trucks and carts must be well maintained, in good working condition, and clearly marked with capacity ratings.

M. All spray bottles, containers, or other forms of liquid storage must be clearly marked with the associated containments.

## 12. Warnings and Facility Lighting

A. Warning signs shall be heeded. Persons seen in a dangerous situation shall be warned without being startled. Employees not required to be near potentially dangerous places shall keep away from them.

B. Hazard Identification markings shall be in use and meet the current requirements for background and letter coloring, size, shape, and appropriate levels of warning for the applications involved.

C. Low clearances, floor openings, uneven surfaces, docks, walkways, or hazardous work zones shall be clearly marked.

D. Pictograms shall be legible and are not torn or excessively worn.

*Reference:* OSHA 29 CFR 1910.145; ANSI Z535

E. Emergency egress and access lighting shall be fully operational and can be served by backup generation or batteries in facilities that are routinely occupied by employees or the public.

- Functional testing shall be completed monthly for a minimum of 30 seconds.
- Functional testing shall be completed annually for a minimum of 1.5 hours.
- Written records of visual inspections and tests shall also be kept by WREC.

*Reference:* OSHA 29 CFR 1910 Subpart E; 29 CFR 1910.37(b)(6); NFPA Line Safety Code 101, Section 7.9.31.1.

F. Facility lighting levels and types shall be ideal for the work area and expected work activities.

*Reference:* OSHA 29 CFR 1926.56(a)

## 13. Reporting Hazardous Conditions

A. When an employee observes a hazardous condition that may cause injury or property damage or interfere with services, regardless of the department in which the condition exists, they shall report it promptly to the proper authority and, when necessary, guard it.

B. An employee who receives a report of any hazardous emergency condition shall obtain the informant's name, the exact location, and the nature of the trouble. They shall immediately refer this information to the person responsible for such matters. All such reports should be documented. The SAFE App should be used for Hazard Recognition reporting.

C. The NESC specifies that when hazards are reported, they need to be prioritized for repair.

- **Priority I:** Situations where there is a public danger.
    1. Protect the public from danger by barricading or guarding.
    2. Repair or replace immediately or within 24 hours.

- **Priority II:** Activities that need material, equipment, or a change of conditions where noted deficiencies do not present an immediate hazardous condition.
    1. Monitor the situation to ensure that it does not deteriorate into a Priority I Hazard.
    2. Repair, replace, or correct within two to four weeks.

- **Priority III:** Situations where the deficiencies or exposure of hazards require engineering or redesign (This may include moving or rebuilding a line or other extensive construction.)
    1. Warn the public in the immediate vicinity (e.g., the owner of a sign located under the line).
    2. Monitor the situation to ensure it does not deteriorate into a Priority I Hazard.
    3. Repair, replace, or correct within four to six weeks.

### 4. Protecting the Public

A. When an employee needs additional light while working on the premises of a member, they shall use a battery-powered flashlight or other approved lighting. Every effort should be made to notify the members prior to working on their property when applicable.
B. The public shall be kept away from locations where work activities present hazards. Every effort should be made to protect the public at all times by using signs, barricades, and/or personal warnings.
C. Hazards such as manholes, pole holes, trenches, or excavations shall be protected and, where exposed to traffic, protected with warning devices that are in accordance with the Florida Department of Transportation Standards.
D. When it is necessary to warn traffic, flagmen or warning devices shall be stationed far enough on each side of the hazard to give vehicles enough time to stop and comply with state and local regulations. When flagmen are used, they shall wear FDOT approved warning garments of reflective material. Total compliance with the "Manual on Uniform Traffic Control Devices," as well as the Florida Department of Transportation's rules and regulations concerning lane closures, is mandatory. All employees engaged in traffic control activities shall familiarize themselves thoroughly with these procedures before proceeding with work activities.
E. While on a job site requiring traffic control, the employee responsible for traffic control shall carry either an FDOT Maintenance of Traffic Training certificate from an FDOT Maintenance of Traffic provider or a certificate from WREC stating the following: "[Employee's name] has been properly trained to control traffic in accordance with the Utility Accommodations Manual's traffic control requirements."
F. Additional personnel shall be utilized wherever necessary to perform traffic control duties, and local law enforcement agencies will be notified, and their assistance requested when applicable.
G. When it is necessary to leave reels, poles, equipment, or other obstructions unattended, the following precautions shall be taken:

1. They shall not be left adjacent to fire plugs or hydrants or directly in front of entrances to private or public property.
2. They shall be locked, blocked, or otherwise secured.
3. They shall be adequately protected by approved warning devices.
4. Poles shall be left far enough out of the right-of-way to prevent unnecessary exposure or additional risk of an accidental collision, and all means exercised to store poles behind existing poles.

H. When chiseling, chipping, or welding is done in locations where others are exposed to eye hazards, shields shall be placed around the work area, or the area shall be roped off or barricaded.

I. When it is necessary to leave a service drop disconnected from a structure, weather head, or meter base, it shall be left in a safe condition in order to protect the public and other employees.

1. Overhead services shall be de-energized before they are "rolled back" and left to avoid unnecessary exposure to injury for the lineman. They shall be affixed to the pole in a manner that will reasonably prohibit contact from the ground. Tape alone will not be an acceptable method for securing the service.
2. Underground services that are "stubbed up" for future use shall ALWAYS be left de-energized.

## 2. Taking Chances

A. Before commencing any work that may be hazardous, care shall be taken to establish a safe procedure. Where more than one employee is engaged in the same job, all employees concerned shall understand the procedures to be followed. Under no circumstances shall safety be sacrificed for speed. Identifying associated hazards and job responsibilities shall be covered in the Job Briefing.

B. Employees shall always place themselves in a safe and secure position. The care exercised by others shall not be relied upon for one's own protection.

## 3. Guards

A. No guard shall be removed from any machine or piece of equipment except to perform required maintenance.

B. Guards removed to perform maintenance operations shall be replaced immediately, and the machine shall not be operated while the guards are removed (except for maintenance certification).

## 4. Lockout Tagout for General Facilities (Excludes Transmission & Distribution)

A. Employees shall ensure that any machine or equipment is stopped, isolated from all potentially hazardous energy sources, and locked out before employees perform any servicing or maintenance where the unexpected energization, start-up of the machine or equipment, or release of stored energy could cause injury.

B. When the servicing or maintenance is completed on any machine or equipment that was locked out of service, that machine or equipment shall be released from lockout and returned to an operational ready status.

C. If an energy isolating device is not capable of being locked out, the lockout tag identifying the authorized employee may be used alone in place of the lock if all employees understand that the tag must be obeyed as lockout.

D. If more than one (1) employee is required to work independently or perform a different task on the same machine or piece of equipment, each employee must apply their own lockout to the machine or piece of equipment. A group lockout hasp shall be used if the energy isolating device will not accommodate all required locks.

E. An authorized employee may transfer lockout to another authorized employee through normal release procedures. The authorized employee assuming the lockout, will apply their lockout through normal application procedures.
F. If an authorized employee who has applied lockout to a machine or piece of equipment is not at the facility and the lockout must be released, that authorized employee's supervisor may assume control and release the lockout through normal release procedures if conditions allow a safe release.
G. The lockout and tagout procedures in this section refer only to general facilities. Please reference the operations manual for transmission, distribution, and substation switching procedures.

*Reference*: OSHA 1910.147 - The Control of Hazardous Energy, Lockout/Tagout

## 1. Introduction

This section deals with general health areas and depicts some of the control methods employees must use for their protection. The general principles outlined in this section are applicable to special types of work that are covered in other sections.

Work processes and work locations can present health hazards to the employee. Because most of these health hazards do not pose an immediate danger, they are frequently not given the attention they deserve.

In order for the employee to be fully protected, they must know as much as possible about potential health hazards. A thorough understanding of the principles of this section is essential.

Identifying labels and applicable precautionary measures are normally printed on all chemical and hazardous material containers. These instructions should be read and understood by the employees using them. Applicable safety and health precautions must be taken. See Section 7, Hazard Communication Program.

## 2. Confined or Enclosed Spaces

A. Supervisors shall ensure that the following OSHA Standards are strictly observed, and any unusual situations are handled properly and reported promptly.

1. OSHA 1926.21 Safety Training and Education

i. All employees required to enter confined or enclosed spaces shall be instructed as to the nature of the hazards involved, the necessary precautions to be taken, and the use of protective and emergency equipment required. The employer shall comply with any specific regulations that apply to work in dangerous or potentially dangerous areas.

ii. For purposes of subdivision (i) of this subparagraph, for purposes of paragraph (b)(6)(i) of this section, "confined or enclosed space" means any space having a limited means of egress, which is subject to the accumulation of toxic or flammable contaminants or has an oxygen deficient atmosphere. Confined or enclosed spaces include, but are not limited to, storage tanks, process vessels, bins, boilers, ventilation or exhaust ducts, sewers, underground utility vaults, tunnels, pipelines, and open top spaces more than 4 feet in depth, such as pits, tubs, vaults, and vessels.

B. While work is being performed in an enclosed space, a properly trained attendant shall be available outside the confined space in the event of an emergency.

1. Each team member must be fully trained as an authorized entrant and confined space rescue personnel. Training must take place initially before confined space entries occur and annually thereafter.

## 3. Hearing Conservation

To conform to Withlacoochee River Electric's current policies and procedures on yearly testing and evaluation of the workplace.

**Note**: Exposure to excessive noise can cause a gradual decay in hearing ability. Efforts are being made to reduce noise in the work areas. Until such a time when the noise hazard is eliminated, employees shall wear proper ear protection when exposed to excessive noise.

A. Ear protection must be worn when there is a possibility of hearing damage. (This occurs when there is continuous exposure to noise or impulse exposure to loud impact noise.) When exposed to noise of 90 DBA (decibels) for more than 8 hours, 95 dBA for over 4 hours, 100 DBA for over 2 hours, or 105 DBA for over 1hour, proper ear protection must be worn. Protection must be used against impact noise over 140 dBA.

   a. OSHA 1910.95(a) Occupational Noise Exposure

      Protection against the effects of noise exposure shall be provided when the sound levels exceed those shown in Table G-16 when measured on the A scale of a standard sound level meter at slow response. When noise levels are determined by octave band analysis, the equivalent A-weighted sound level may be determined as follows:

   b. OSHA 1910.95(b)(1) Occupational Noise Exposure

      When employees are subjected to sounds exceeding those listed in Table G-16, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of Table G-16, personal protective equipment shall be provided and used to reduce sound levels within the levels of the table.

Permissible Noise Exposures

| Duration per day, hours | Sound level dBA slow response |
|---|---|
| 8 | 90 |
| 6 | 92 |
| 4 | 95 |
| 3 | 97 |
| 2 | 100 |
| 1 ½ | 102 |
| 1 | 105 |
| ½ | 110 |
| ¼ or less | 115 |

B. Specific areas where the noise level is above 90 DBA shall be identified, and time limits stated. Employees identified, and time limits stated. Employees shall wear proper protective devices when exposed beyond posted limits.
C. Proper ear protection may consist of any of the following: earmuffs, ear plugs, "Swedish Wool," molded ear protectors, to wax-type ear plugs. Plain cotton is not acceptable. Ear protective devices shall be worn properly to provide the required protection and meet OSHA/ANSI STANDARDS; they shall be maintained in a sanitary condition.
D. Hearing protection shall be inspected before each use and by supervisors quarterly. If defects are found, it shall be removed from service and replaced immediately. All visitors are required to wear hearing protection when necessary.
    - Muffs cover the entire ear and can reduce noise by as much as 15-30 dBA.
    - Ear plugs are positioned in the outer ear and may reduce noise by as much as 30 dBA.
    - Canal caps are commonly used when an individual is unable to use traditional ear plugs.
E. Employees shall wear approved ear protection while operating, or when within fifteen (15) feet of the operation of the following tools and equipment:
    - Ground Rod Driver
    - Gas Powered Chainsaw
    - Concrete Cutting Saw
    - Pneumatic Air Hammer
    - Any Power-Actuated Tool
    - Any Equipment Requiring Ear Protection as so Marked with a Decal or Sign

## 4. Exhaust Ventilation

A. Exhaust systems, when provided at the work location, shall be used.
B. When an exhaust system does not provide adequate protection, other protective means, such as an approved respirator, shall be used.

## 5. Respirators and Supplied Air Systems

A. Only those systems and devices supplied or approved by Withlacoochee River Electric Cooperative shall be acceptable.
B. Where various types of respirators are available, care must be taken in proper selection. The respirator must provide adequate protection against the anticipated hazard. Whenever there is doubt, a more protective device must be used.
C. A respirator with a dust filter is not suitable when working with toxic fumes.
D. Defective respiratory and/or Self-Contained Breathing Apparatus (SCBA) equipment shall be immediately removed from service and replaced immediately.
E. Equipment shall be stored in dedicated containers.
F. Respirators and SCBA must be inspected before each use.
G. SCBA cannot be stored in the same room as chlorine.

H. Types of respirators include the following:
   - Air Purifying Respirator
     - Single-use
     - Reusable
   - Power Air Purifying Respirator
   - Continuous Flow Respirator
   - Pressure Demand Respirator
   - Supplied Air Respirator
   - Oxygen Breathing Respirator
   - Self-Contained Breathing Apparatus
   - Hose Mask with Blower

I. When respirators are provided for a particular work activity, they shall be used. Approved respirators shall be worn when:

1. Applying paint or toxic liquids with pressure spray equipment inside buildings, except in shops where special approved rooms or booths are provided for this purpose and lower paint concentration levels below the permissible exposure level as defined by the chemical manufacturer's SDS.
2. When buffing creates an abnormal amount of dust
3. Welding or cutting involving hazardous materials without adequate ventilation.
4. Handling acids or caustics.
5. Sandblasting and/or exposed to nuisance dusts.
6. Required by a chemical manufacturer's SDS.

J. Users of respirators shall follow the manufacturer's instructions or the specific instructions of supervision.

K. Only employees trained and fitted in their use shall use respirators. The user must also have proper medical clearance.

L. Persons using airline respirators or similar respirator devices in an enclosed area shall be equipped with a safety harness and lifeline or other equivalent means of rescue.

M. At least one person with suitable self-contained breathing apparatus shall be at the nearest fresh air base for emergency rescue.

N. Contact lenses shall not be worn when using a respirator.

O. Care, cleaning, and storage shall be the responsibility of the user and strict attention to proper procedures shall be the rule.

## 6. Battery Charging

A. Unsealed battery charging areas/rooms must have "No Smoking" and "Eye and Face Protection Required" signage.
B. Unsealed battery charging areas/rooms must have proper ventilation and racks or trays resistant to electrolyte.
C. Battery charging stations for batteries used on typical power tools do not apply to the criteria above.
D. Lithium rechargeable cordless tool batteries must be stored and charged properly, battery shells are not damaged, stored in non-metallic containers away from flammable materials, and terminals should be protected.
*Reference*: OSHA 29 CFR 1910.178(g)(2)

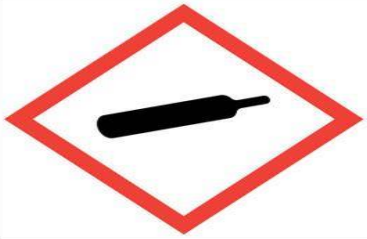
## 7. Hazard Communication

Compliance with OSHA 1910.1200 Hazard Communication is mandatory for all personnel and shall be accomplished by the implementation of Withlacoochee River Electric Cooperative's written program. This program has been prepared specifically for each department and contains the necessary information relating to labeling and handling as well as applicable Safety Data Sheets and is accessible at any time to any employee by contact with their supervisor. One employee in each District, Operations, and Headquarters shall be assigned to be in charge of maintaining an updated SDS.

A. Safety Data Sheets (SDS) are located on all desktops and iPads. The SDS are updated through warehouse personnel that receive new products.
*Reference:* WREC Intranet - SDS
B. WREC's Hazard Communication program includes container labeling and other forms of warning, safety data sheets, and employee training. Employee training on the proper handling, usage, storage, and transportation of chemicals for employees who may be exposed to hazardous chemicals when working must be provided information and trained prior to their initial assignment and annually thereafter. Exposure includes inhalation, skin, or eye contact, ingestion, or injection.
C. Spill Prevention Control and Counter Measure Plan (SPCCC)
*Reference:* WREC: Spill Prevention Control and Countermeasure Plan (SPCCP)
D. All containers, spray bottles, drums, or other means of liquid storage must be labeled with the associated contents

E. Hazard Pictograms and Related Hazard Classes:

## GHS - Hazard Pictograms and Related Hazard Classes

| | | |
|---|---|---|
|  |  |  |
| **Exploding Bomb**<br>• Explosives<br>• Self-reactives<br>• Organic Peroxides | **Corrosion**<br>• Skin corrosion/burns<br>• Eye damage<br>• Corrosive to metals | **Flame Over Circle**<br>• Oxidizing gases<br>• Oxidizing liquids<br>• Oxidizing solids |
|  |  |  |
| **Gas Cylinder**<br>• Gases under pressure | **Enviroment**<br>• Aquatic toxicity | **Skull & Crossbones**<br>• Acute toxicity (fatal or toxic) |
|  |  |  |
| **Exclamation Mark**<br>• Irritant (eye & skin)<br>• Skin sensitizer<br>• Acute toxicity<br>• Narcotic effects<br>• Respiratory tract irritant<br>• Hazardous to ozone layer (non-mandatory) | **Health Hazard**<br>• Carcinogen<br>• Mutagenicity<br>• Reprodcutive toxicity<br>• Respiratory sensitizer<br>• Target organ toxicity<br>• Aspiration toxicity | **Flame**<br>• Flammables<br>• Pyrophorics<br>• Self-heating<br>• Emits flammable gas<br>• Self-reactives<br>• Organic peroxides |

# FIRE PREVENTION AND PROTECTION

## 1. Housekeeping

Work locations, vehicles, and the inside and outside of buildings shall be kept clean and orderly at all times.

A. Used rags shall be kept in metal or metal-lined bins having metal covers. Used and oily rags must be discarded daily.
B. Flammable liquids such as gasoline, benzene, naphtha, and lacquer thinner shall not be used for general cleaning purposes.
C. All solvents shall be kept in approved, properly labeled containers. Gasoline, benzene, naphtha, lacquer thinner, and other solvents of this class shall be handled and dispensed only in U.L.-approved, properly labeled safety cans.
D. Permanent floors and platforms shall be kept free of dangerous projections or obstructions and shall be maintained reasonably free from oil, grease, or water. Where the type of operation produces slippery conditions, mats, grates, cleats, or other methods shall be used to reduce the hazard of slipping.
E. Stairways, aisles, permanent roadways, walkways, and material storage areas in yards shall be kept clear and free from obstructions, depressions, and debris.
F. Materials and supplies shall be stored in an orderly manner so as to prevent their falling or spreading and to eliminate tripping and stumbling hazards.
G. Paper and other combustible materials shall not be allowed to accumulate, and weeds or other rank vegetation shall not be permitted to grow in or around the neighborhood of substations, pole yards, buildings, oil tanks, or other structures.
H. In any building, except one provided for their storage, flammable liquids such as gasoline, benzene, naphtha, lacquer thinner, etc., no more than twenty-five (25) gallons shall be stored in a room outside of an approved storage cabinet. No more than sixty (60) gallons of flammable or one hundred and twenty (120) gallons of combustible liquids shall be stored in any one storage cabinet. Not more than three (3) such cabinets may be located in a single storage area.
I. When pouring or pumping gasoline or other flammable liquids from one container to another, metallic contact shall be maintained between the pouring and receiving containers.
J. Strict adherence shall be paid to "No Smoking" and "Stop Your Motor" signs at fuel dispensing locations.

## 2. Smoking

A. Smoking is prohibited in all Cooperative buildings and enclosed facilities.
B. Open flames are prohibited in areas such as oil rooms, hydrogen or acetylene storage, refueling stations, or any other place where ignitable gases might be present.
C. The absence of “No Smoking” signs shall not excuse smoking in dangerous places.
D. An employee shall not smoke in WREC vehicles or equipment.

E. Smoking is only permitted in designated smoking areas.

## 3. Fire Protection

A. Fire protection equipment shall be properly located at all times. Except for actual use, employees shall not move or remove such equipment without proper authority.
B. Fire extinguishers and hose stations must not be blocked or hidden behind material or machines.
C. Employees shall be familiar with both the location and the operation of all fire protective equipment in the vicinity of their work area.
D. Employees shall familiarize themselves with the emergency exits, alarm signals, and escape procedures when working inside a building or structure.
E. Reference your location's Emergency Action Plan.
F. All fire extinguishers shall be recertified annually and inspected monthly.
G. All employees shall know the classes of fire, their burning characteristics, and the proper extinguishing agent to be used.
    1. Class "A" fires involve ordinary combustibles such as wood and paper. Extinguishing agents include water and multipurpose dry chemicals.
    2. Class "B" fires involve oils and flammable liquids. Extinguishing agents include CO2 and dry chemicals, and Halon.
    3. Class "C" fires involve electrical equipment. Extinguishing agents include CO2 and dry chemicals, and Halon.
    4. Class "D" - Combustible metals such as magnesium, titanium, zirconium, sodium, lithium, and potassium. Consult a material safety data sheet for special instructions on firefighting.
    5. Class "K" involves cooking media such as oils, fats, and grease commonly found in cooking places such as commercial restaurants.
    6. Halon 1301 (Freon) and Halon 1211 are gaseous extinguishing agents suitable for combating both Class "B" and Class "C" fires, especially at indoor locations. Both agents are slightly toxic in low concentrations (less than 5 percent) and will cause unconsciousness in a short period of time when the concentration is above fifteen (15%) percent. When the extinguishing agent is released, precautionary measures similar to those for toxic, confined spaces should be employed.
H. Employees shall not enter confined spaces after using CO2 extinguishers until the area has been thoroughly ventilated.
    *Reference:* WREC: Using A Fire Extinguisher

# HANDLING MATERIALS

## 1. Handling Materials by Hand

A. An employee shall obtain assistance in lifting heavy objects, or they shall use power equipment.
B. When two or more people are carrying a heavy object that is to be lowered or dropped, there shall be a prearranged signal for releasing the load.
C. When two or more people are carrying one object, each employee, if possible, shall face the direction in which the object is being carried.

## 2. Industrial Trucks, Forklifts, and Telescopic Handlers

A. Industrial trucks shall be operated only by authorized persons who are trained in their use. Training is required initially before operation and every three (3) years thereafter.
B. Hard hats, safety glasses, and seatbelts are required while operating forklifts, industrial trucks, or telescopic handlers.
C. Brakes and controls shall be tested prior to use. Equipment with faulty brakes or mechanical or electrical defects shall not be operated and tagged "Out of Service." Needed repairs shall be reported immediately.
D. Equipment shall always be operated at a safe speed for existing conditions.
E. Before moving the equipment, the operator shall make sure that no person or objects are in the path of the vehicle. Clearances in all directions shall always be checked, particularly overhead clearances.
F. Industrial trucks or any other equipment shall not be fueled while the engine is running.
G. When picking up a load, forks shall be set squarely and placed under the load as far as possible. Loads should not be raised or lowered while traveling. Loaded or empty, forks should be carried as low as possible but high enough to clear uneven surfaces.
H. Loads shall not be suspended or swung over other persons. No one should be allowed to stand or walk under elevated forks.
I. The operator shall always face in the direction of travel.
J. On inclines, all types of loaded lift trucks shall be driven with the load on the upgrade side of the driver, whether ascending or descending.
K. Sudden stops that might spill the load shall be avoided.
L. All loads shall be securely fastened or safely positioned to prevent tipping or falling.
M. Lift bars on forklift trucks that are movable or replaceable shall be held firmly in place by a proper securing pin. Jury rigged devices, such as using a threaded bolt, shall not be permitted.
N. Only attachments provided by or approved by the manufacturer may be used; all attachments shall be properly secured. Improvised methods shall not be used. All load ratings and capacity ratings must be legible on all attachments.
O. No one other than the operator shall be allowed to ride the truck, forklift, or other equipment, except when seats are provided for this purpose. Seat belts shall be worn.

P. When an industrial truck is left unattended (operator is 25 feet away or the vehicle is not in his view), the load engaging means shall be fully lowered, controls shall be neutralized, power shall be shut off, and brakes shall be set. A wheel chock shall be used when the truck is parked on an incline.
Q. Equipment with internal combustion engines shall not be operated in enclosed areas for prolonged periods of time without proper ventilation so as not to exceed the allowable levels of carbon monoxide.
R. The brakes of highway trucks shall be set, and wheel chocks placed under the rear wheels to prevent the truck or trailer from rolling while they are boarded with powered industrial trucks.
S. Hard hats and seatbelts shall be worn while operating forklifts.
T. All industrial trucks, forklifts, and telescopic handlers shall be equipped with an operator safety instruction manual on the vehicles or easily available to the operator.
U. Operators shall ensure that the industrial truck, forklift, or telescopic handler is ready for use.
    1. Fire extinguisher present.
    2. Daily inspection record present and in use.
    3. No excessive wear on tires.
    4. Forks are not cracked or damaged.
    5. Load backrest is not damaged.
    6. Overhead guard present- not cracked.
    7. Load rating plate is readable.
    8. Warning decals are present.
    9. Seat belt accessible and used; not oily or damaged.
    10. Horn, signal, and lights are operational.
    11. Controls and levers are legible.
    12. Backup alarm is functional.
V. Telescopic Handlers require specific training and certification before initial use and are not to be operated until completion of training. This training is required every three (3) years thereafter.
    *Reference:* WREC: Forklift Operator Training Video
    *Reference:* WREC: Lift Pro Telehandler Operator Training Video

*"There is no job so important that we cannot take the time to do it safely."*

## 3. Cranes, Derricks, and Hoisting Equipment

A. Only those persons who are trained and authorized shall operate the hoisting equipment.
B. No person shall be permitted to ride the hook, sling, or load of any hoisting equipment.
C. Load limits as specified by the manufacturer shall not be exceeded under any circumstances.
D. Operating and maintenance procedures, as specified by the manufacturer, shall be followed.
E. The following are the minimum checks to be made daily prior to use:
    1. All control mechanisms for maladjustment that may be interfering with proper operation.
    2. All safety device's function.
    3. Deterioration or leakage in air or hydraulic systems.
    4. Hooks, slings, and load attachment devices.
    5. The proper size fire extinguisher shall be available.
    6. The weight limits are clearly visible on all hoists and jacks for lifting.
    7. Evidence of an annual inspection by a certified inspector is readily available.
F. For the first lift of each day, the load shall be test lifted, and the brakes checked (load lifted several inches and then tested).
G. With every load, the slings and bindings shall be checked and shall be readjusted as necessary to ensure safety and stability.
H. All slings and other fittings shall be of sufficient strength, proper type, and safe for their intended use.
I. Signals to the equipment operator shall be given by one person designated to perform this task. The operator shall, however, obey a "Stop" signal given by anyone.
J. When mobile hoists, cranes, or similar lifting devices are used near energized lines or equipment, the lifting device shall comply with the EQUIPMENT GROUNDING SECTION of these rules.
K. No employee shall be under a suspended load or inside the angle of the winch line. No employee shall stand or work near a cable, chain, or rope under tension unless the nature of his work requires it.
L. Winch lines, ropes, or wire cables shall not be guided by hand when standing within reach of the drum or sheave. This shall include the operation of all take up reels when retiring the old line.
M. Wire rope loops shall be made by proper splicing or mechanical clamping of the tail section. Wire rope clips shall not be used to form eyes in wire rope bridles or slings. Knots shall not be used in wire ropes for any purpose.
N. Operators shall not leave their position at the controls of cranes, hoists, derricks, or other lifting devices while the load is suspended.
O. Operators of cranes, derricks, hoists, and other hoisting equipment shall exercise extreme caution when in close proximity to energized lines or equipment.

P. Trucks on which derricks or booms are erected above traveling height shall not be moved except under the immediate direction of a designated employee, who shall give his undivided attention to the movement.
Q. Proper slings shall be used in conjunction with all braided rope used on lifting equipment to protect the integrity of the rope line. Frequent checks for excessive wear shall be made, and rope changed out when necessary.
R. All slings, ropes, or rigging must have clear and visible manufactured recommended capacity ratings. While handling cable slings, extra care shall be taken. Rubber gloves should not be used while handling cable slings, and extra caution shall be used to prevent damage to the rubber gloves, and a glove inspection shall follow.
S. Skidding tongs shall not be used to suspend a pole off the ground, only approved lifting tongs are acceptable.

# PERSONAL PROTECTIVE EQUIPMENT

## 1. General

A. Employees shall be provided with approved eye and face protection equipment whenever necessary to protect against chemical, environmental, radiological, or mechanical irritants and hazards. General ANSI Z87.1 eye protection shall be the only type of safety glasses available on the job.

B. Supervisors shall insure that proper eye and face protection is not only provided but is worn in all applicable circumstances. (Whenever work is being done) Supervisors will inspect all Personal Protective Equipment quarterly. Visitors to the job sites are required to wear eye protection.

C. Eye and face protection shall conform to the requirements of the American National Standard Practice for Occupational and Educational Eye and Face Protection (ANSI Z87.1 1989). See eye and face protection chart below in this section.

D. Protection against Electrical Arc:

1. Where the danger of an electrical arc exists (including switching,) approved eye protection shall be used and FR clothing is required. The equipment should be replaced immediately when not functioning properly.

*Reference:* OSHA 1926.102 - Eye and Face Protection

## 2. Eye and Face Protection

A. Eye and/or face protection meeting the requirements of ANSI Z87.1-1989 shall be worn by employees when engaging in the following work activities:

1. Anytime the possibility of an electrical flash exists.
2. Use of power tools such as drills, saws, sanders, weed eaters, edgers, blowers, hedge trimmers, etc.
3. Anytime falling or flying particles created by the work being performed could cause eye injury.
4. While within range of flying particles caused by others.
5. Hand or bench-mounted power grinding, buffing, or wire brushing, whether there is a built-in eye shield or not.
6. Flame welding, cutting, or burning, including thermite (Caldwell) type welders. (Approved colored lenses shall be used)
7. Using compressed air for cleaning or blowing.
8. Using a pressure washer or steam cleaner or when in the immediate vicinity of their use.
9. While operating a mower or in the area of debris being discharged from a mower.
10. When pouring hot compounds or using other hot or injurious substances.
11. Handling of acids, caustics, chlorines, ammonia, or other similar liquids or gases except when approved complete head coverings are worn. (Chemical goggles are necessary)

12. Operating power-actuated tools.
13. At the direction of a supervisor or when there is any other danger of injury to the eyes.

B. All eye and face protection equipment shall be inspected prior to use each day.
C. Employees and/or supervisors shall ensure that all cooperative invited visitors on the job site wear approved eye protection when required.
D. Face protection shall be worn when the possibility of injury to the face from flying objects exists. Face protection shall not take the place of eye protection.
*Reference:* OSHA 1910.133 - Eye and Face Protection

3. Head Shields and Hoods

A. Approved head shields or hoods meeting ANSI standards shall be worn when welding, whether hydrogen, Heli-arc, or electric arc. Equipment not functioning properly shall be replaced immediately, and work stopped until appropriate equipment is provided.
B. Face shields shall be worn when working in meter cans, panels, when installing or removing meters, checking voltage, or installing an eagle recorder in an underground transformer or pedestal.

# Eye and Face Protection According to ANSI Standards

| Hazard | Protection |
|---|---|
| **Impact Hazards** | |
| • Flying Debris | • Safety glasses with side protection or goggles<br>• Face shield worn over glasses or goggles<br>• Respirator |
| **Heat Hazards** | |
| • Hot Sparks | • Safety glasses with side protection or Goggles<br>• Face shield worn over glasses or goggles<br>• Respirator |
| • Splash from Molten Metal | • Face shield worn over glasses or goggles<br>• Respirator |
| • High Temperature Exposure | • Screen face shield worn over glasses or goggles<br>• Reflective face shield worn over glasses or goggles |
| **Chemical Hazards** | |
| • Splash, droplets, or spray | • Goggles<br>• Face shield worn over goggles<br>• Respirator |
| • Mist | • Goggles – with no ventilation<br>• Face shield worn over goggles<br>• Full face respirator |
| **Dust Hazards** | |
| • Basic dust | • Goggles<br>• Respirator |
| • Fine dust | • Goggles – with no ventilation<br>• Respirator |
| **Optical Radiation Hazards** | |
| • Infrared Radiation<br>• Visible Light<br>• Ultraviolet Radiation | • Safety glasses with side protection<br>• Goggles<br>• Face shield over glasses or goggles<br>• Welding helmet over glasses or goggles<br>• Respirator |

| Hazard | Protection |
|---|---|
| **Optical Radiation Hazards** - *Continued* | |
| • Electric Arcs | • NFPA 70E recommended face protection for Arc Flash |
| • Arc Welding Arc | • Welding helmet over glasses or goggles<br>• Headshield over glasses or goggles<br>• Welding respirator<br>• Typical filter lens shade: 10-14 |
| • Oxyfuel Gas Welding | • Welding goggles<br>• Welding helmet over glasses or goggles<br>• Welding face shield over glasses or goggles<br>• Typical filter lens shade: 6-8 |
| • Oxyfuel or Oxygen Cutting | • Welding goggles<br>• Welding helmet over glasses or goggles<br>• Welding face shield over glasses or goggles<br>• Typical filter lens shade: 3-6 |
| • Torch Brazing | • Welding goggles<br>• Welding helmet over glasses or goggles<br>• Welding face shield over glasses or goggles<br>• Typical filter lens shade: 3-4 |
| • Torch Soldering | • Safety Glasses<br>• Welding face shield over glasses<br>• Typical filter lens shade: 2 |

## 4. Head Protection – Hard Hats

A. Approved safety headgear shall be worn by all employees when in areas where falling objects, electrical contact, or other hazards may cause a head injury or any time work is being done and including:
   1. Climbing and/or working on poles, towers, etc.
   2. Operating an aerial lift or digger derrick.
   3. On the job site, where any overhead work is being performed.
   4. In areas where falling objects, electrical contact, or other hazards may cause a head injury.
   5. Within electric substations, when any work is being performed.

B. Hard hats shall meet all OSHA/ANSI standards and be inspected by supervisors quarterly. Hard hats shall be inspected at each time of use, and if defects are found, they shall be replaced immediately.

C. Employees and/or supervisors shall ensure that all cooperative invited visitors on the job site wear approved head protection when required in conjunction with approved safety glasses and reflective vests when necessary.

D. Safety headgear or headband assembly shall not be defaced or altered in any manner.

E. Sweatbands must be FR and issued by WREC.
   *Reference:* OSHA 1910.135 - Head Protection, ANSI Z89.1-1997

## 5. Life Jackets, Lifelines, and Similar Equipment

A. When working where there is a danger of drowning, employees shall wear an approved personal flotation device or be protected by a safety belt and lanyard or by a safety net.

B. While working on limited exit areas where there is a likelihood of fire, escaping gas, toxic fumes, or deficiency of oxygen (as inside tanks or tunnels), an employee shall wear an approved belt or harness with a lifeline attached.

C. Employees shall not enter such a confined area unless a second man is stationed outside the exit and is prepared to render assistance.

*Reference:* See the Safety Manual Section on Confined or Enclosed Spaces.

## 6. Wearing Apparel

A. Each employee shall wear shoes, boots, gloves, and other clothing suitable for the work performed.

B. Each employee who is exposed to the hazards of flames or electric arcs shall be knowledgeable of the respective task and avoid the hazards involved.

C. Employees who are exposed to the hazards of flames or electric arcs shall not wear clothing that, when exposed to flames or electric arcs, could increase the extent of injury that would be sustained by the employee.

D. A flame-resistant/retardant shirt and/or jacket should be worn when working on or near live parts and while on poles or structures or exposed to flames or electric arcs. Each

employee exposed to hazards from electric arc must wear protective clothing and other protective equipment with an arc rating greater than or equal to the heat energy estimated by Headquarters Engineering's arc assessment whenever the estimate exceeds 2.0 Cal/cm2. This protective equipment shall cover the entire body, except as follows:

1. Arc rated protection is not necessary for the employee's hands when the employee is wearing rubber insulating gloves with protectors.
2. Arc rated protection is not necessary for the employee's feet when the employee is wearing heavy-duty work shoes or boots.
3. Arc rated protection is not necessary for the employee's head when the employee is wearing head protection meeting OSHA 1910.135 - Head Protection if the estimated incident energy is less than 9 Cal/cm2 for exposures involving single-phase arcs in open air or 5 Cal/cm2 for other exposures. The protection may include a face shield with a minimum arc rating of 8 Cal/cm2.

E. Flame-resistant clothing shall be visually inspected for integrity before use each day.

F. Shirt tails pose a safety threat around rotating tools and can snag on obstacles causing tripping or falling hazards. For the sake of positive public image and safety, shirt tails should be tucked in.

G. Before work is performed on or near energized lines or equipment, or if there is a possibility of the lines or equipment becoming energized, the employee shall remove all conductive articles or render them non-conductive. (OSHA 1910.269 (i) Guidelines for the Enforcement of the Apparel Standard). Gold chains or any other exposed conductive jewelry shall not be worn by employees exposed to energized work.

H. Each employee shall wear gloves suitable for the work they are doing anytime there is a possibility of injury to the hands or fingers. Cut-resistant gloves shall be worn. Rubber glove protectors shall not be used as work gloves.

I. When any employee is working on the ground within the road right-of-way, the employee shall wear an approved Class-3 vest. If working in the right of way and in the arc flash zone, the vest must be flame-resistant/retardant.
*Reference:* OSHA 1910.132 - General Requirements – Personal Protective Equipment, and OSHA 1910.26(1)

## 7. Shoes and Foot Protection

Based on OSHA's revision of the General Industry Foot Protection Standard, an employer must ensure workers use protective footwear as a supplementary form of protection when the use of protective footwear protects the workers from electrical hazards.

A. Shoes or boots suited to the safe performance of the individual job shall be worn. Poorly fitting shoes and those in bad condition shall not be worn by any employee.

B. Employees required to wear FR clothing, work in the warehouse or shop are required to wear leather work boots with a composite toe and ankle support. Tennis shoes are not acceptable work shoes in the shop, warehouse, or field environment.

C. Each employee required to perform physical work outdoors or in an indoor shop environment shall wear protective footwear with a slip-resistant sole approved by their supervisor. A slip-resistant sole is defined as a sole with a tread pattern. Smooth surface soles or sport shoes are not approved.

D. Dielectric overshoes will be required anytime there is a potential for step voltage. The hazards must be discussed in the job briefing and understood by all participants. These conditions may include but are not limited to the following scenarios:

1. Handling the butt of any type of pole being set or removed from an energized line or that has the potential to reach the energized line or equipment during the task.
2. Anytime grounding of equipment or poles is taking place on an energized line by ground personnel.
3. During any energized primary switching scenario involving underground equipment. During overhead switching with equipment that uses ground operated handles.
4. During the process of walking out an ungrounded primary line to determine the cause of an outage or trouble call if the status of the line is unknown. Should be considered if there is a possibility of generator or transformer back feed, induced voltage, or full voltage from multi-phase contact.
5. Anytime that an employee is entering and working within an energized substation location and the status of the grounds and ground grid is not known.
6. Used in association with grounding mats.

## 8. Fall Protection

A. Employees shall use a WREC approved personal fall arrest system, wood pole fall restricting system, or work positioning system when working at elevated locations more than four (4) feet above the ground on poles, towers, or similar structures.

B. Employees working from an aerial device shall wear a body harness with a lanyard attached to the unit in accordance with the manufacturer's recommendations and shall not belt to an adjacent pole or structure. Flame-resistant (FR) harness and lanyard are required for any live-line work.

C. Employees shall use a WREC approved personal fall arrest system utilizing a body harness when working in an aerial lift.

D. Employees shall use a WREC approved fall arrest system, work positioning system, or other fall protection system complying with OSHA 1926.502 when on any walking/working surface with an unprotected side or edge six (6) feet or more above a lower level.

E. Each component of a personal fall arrest system, wood pole fall restricting system, or work positioning system shall be inspected according to the manufacturer’s instructions before use each day to determine that the equipment is in safe working condition prior to use.

F. Components of a fall arrest system used by employees exposed to the hazards of flames or electric arcs shall be capable of passing a drop test after exposure to an electric arc with heat energy of 45 Cal/ cm2. Components manufactured in accordance with ANSI

F887 are deemed compliant with this requirement. All body harnesses and lanyards must meet the FR rating described in the arc flash assessment.

G. Each component of a personal fall arrest system, wood pole falls restricting system, or work positioning system shall be used according to the manufacturer's instructions.
H. Employees shall rig their personal fall arrest systems so they cannot free fall more than four (4) feet or contact any obstructions, another level, or the ground. In situations where personal fall restraint systems must be disconnected to maneuver around objects or obstructions, a secondary system must be used in conjunction with the primary system.
I. Lifelines used in a fall protection system shall be protected against being cut or abraded.
J. Snap hooks used in a fall protection system shall not be connected to each other or connected to loops made in webbing-type lanyards.
K. Lanyards used with a body harness shall have a decelerating component to limit the fall arresting force on an employee to 1,800 lbs.
L. Anchorages used in a fall protection system shall be capable of supporting at least 5,000 lbs. of force per employee attached.
M. Any personal fall arrest system, wood pole fall restricting system, or work positioning system subjected to impact loading shall be immediately removed from service and inspected by a competent employee to determine if the equipment is damaged. Damaged equipment shall be removed from service.

**Note**: For additional information on fall-arrest equipment and positioning device requirements, refer to OSHA Standard 29 CFR 1910.269(g)(2) or 1926.502.

*Reference*: WREC: SuperSqueeze Instructions and Warnings

# TOOLS AND WORK EQUIPMENT

## 1. General Tool Use

A. All tools, regardless of ownership, shall be of an approved type and maintained in good condition. Tools are subject to inspection at any time, with mandatory inspection every three (3) months. The inspection should be forwarded to the Job Training and Safety department for documentation. A supervisor has the authority and responsibility to condemn unserviceable tools, regardless of ownership.
B. Defective tools shall be tagged to prevent their use and shall be removed from service.
C. Employees shall always use the proper tool for the job to be performed. Makeshift and substitute tools shall not be used.
D. Hammers with metal handles, screwdrivers with metal continuing through the handle, and metallic measuring tapes shall not be used on or near energized electrical circuits or equipment.
E. Tools shall not be thrown from place to place or from person to person; tools that must be raised or lowered from one elevation to another shall be placed in tool buckets or firmly attached to hand lines.
F. Tools shall never be placed unsecured on elevated places.
G. Impact tools such as chisels, punches, and drift pins that become mushroomed or cracked, shall be dressed, repaired, or replaced before further use.
H. Chisels, drills, punches, ground rods, and pipes shall be held with suitable holders or tongs (not with the hands) while being struck by another employee.
I. Shims shall not be used to make a wrench fit.
J. Wrenches with sprung or damaged jaws shall not be used.
K. Pipe shall not be used to extend a wrench handle for added leverage unless the wrench was designed for such use.
L. Tools shall be used only for the purposes for which they have been approved.
M. Tools with sharp edges shall be stored and handled so that they will not cause injury or damage. They shall not be carried in pockets.
N. Wooden handles that are loose, cracked, or splintered shall be replaced. The handle shall not be taped or lashed with wire.
O. All cutting tools such as saws, wood chisels, draw knives, or axes shall be kept in suitable guards or in special compartments. Pipe cutting tools should be used with extreme caution to keep body parts away from blades in all circumstances. Cut-resistant gloves shall be worn when using all cutting tools.
P. Tools shall not be left lying around where they may cause a person to trip or stumble.
Q. When working on or above open grating, canvas or other suitable covering shall be used to cover the grating to prevent tools or parts from dropping to a lower level where others are present, or the danger area shall be barricaded or guarded.
R. The insulation on hand tools shall not be depended upon to protect users from shock.
S. When assigning equipment or machinery to employees, the supervisor shall make sure the employee is trained in and familiar with the type of machinery and its safety-related

work practices, safety procedures, and other safety requirements that pertain to their respective job assignments. The supervisor shall require that all of the manufacturer's recommendations are followed for the use and operation of the respective machinery or equipment. The manufacturer's manual or guidelines shall be made available to the operators of the equipment or machinery assigned.

## 2. Chainsaws

Operating a chainsaw is inherently hazardous. Potential injuries can be minimized by using proper personal protective equipment and safe operating procedures. Whether operating a gas or electric chainsaw, chaps are required to be worn. The only exception is while operating a chainsaw from inside a bucket. Running saws are prohibited from being placed inside of a bucket under any circumstances.

A. Before Starting a Chainsaw
   1. Check controls, chain tension, and all bolts and handles to ensure that they are functioning properly and that they are adjusted according to the manufacturer's instructions.
   2. Make sure that the chain is always sharp and the lubrication reservoir is full.
   3. Start the saw on the ground or on another firm support. Drop starting is never allowed.
   4. Start the saw at least ten (10) feet from the fueling area, with the chain's brake engaged.

B. Fueling a Chainsaw
   1. Use approved containers for transporting fuel to the saw.
   2. Dispense fuel at least ten (10) feet away from any sources of ignition when performing construction activities. No smoking during fueling.
   3. Use a funnel or a flexible hose when pouring fuel into the saw.
   4. Never attempt to fuel a running or HOT saw.

C. Chainsaw Safety
   1. Clear away dirt, debris, small tree limbs, and rocks from the saw's chain path. Look for nails, spikes, or other metal in the tree or pole before cutting.
   2. Shut off the saw or engage its chain brake when carrying the saw on rough or uneven terrain.
   3. Keep your hands on the saw's handles and maintain secure footing while operating the saw.
   4. Proper personal protective equipment must be worn when operating the saw, which includes hand, foot, leg, eye, face, hearing, and head protection.
   5. Do not wear loose-fitting clothing.
   6. Be careful that the trunk or tree limbs will not bind against the saw.
   7. Watch for branches under tension; they may spring out when cut.
   8. Gasoline-powered chainsaws must be equipped with a protective device that minimizes chain saw kickback.

9. Be cautious of saw kickback. To avoid kickback, do not saw with the tip. If equipped, keep the tip guard in place and never operate the saw above shoulder height.
10. Battery-powered chainsaws are the preferred choice while working in an aerial device because it eliminates the possibility of drop starting or passing a running saw from one employee to another.
    *Reference:* WREC: Chainsaw Safety Video

## 3. Portable Electric Tools

A. The non current carrying metal parts of portable electric tools such as drills, saws, and grinders shall be effectively grounded when connected to a power source unless:
   1. The tool is an approved double-insulated type, or
   2. The tool is connected to the power supply by means of an isolating transformer or other isolated power supply, such as a 24V DC system, or
   3. The tool is connected to an approved ground fault circuit interrupter.

B. All powered tools shall be examined prior to use to ensure general serviceability and the presence of all applicable safety devices.

C. Powered tools shall be used only within their design capability and shall be operated in accordance with the instructions of the manufacturer.

D. All tools shall be kept in good repair and shall be disconnected from the power source while repairs are being made.

E. Electrical tools shall not be used where there is a hazard of flammable vapors, gases, or dust.

## 4. Pneumatic and Hydraulic Tools

A. Compressed air and compressed air tools shall be used with care.

B. Pneumatic tools shall never be pointed at another person.

C. Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected.

D. Safety clips or retainers shall be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled.

E. Compressed air shall not be used for cleaning purposes, except where reduced to less than 30 psi and then only with effective chip guarding and personal protective equipment.

F. Compressed air shall not be used to blow dust or dirt from clothing.

G. The manufacturer's stated safe operating pressure for hoses, pipes, valves, filters, and other fittings shall not be exceeded.

H. The use of hoses for hoisting or lowering tools shall not be permitted.

I. All compressed air hoses exceeding half an inch (½") inside diameter shall have a safety device at the source of supply or branch line to reduce pressure in the event of hose failure.

J. Before adjusting or changing air tools, unless equipped with quick change connectors, the air shall be shut off at the air supply valve ahead of the hose. The hose shall be bled at the tool before breaking the connection.

K. Eye protective, foot protective, and other protective devices shall be worn where there is a reasonable probability that injury can be prevented by such equipment.
L. Powered tools shall be operated only by competent people who have been trained in their use.
M. Conductive hose shall not be used near energized equipment.

## 5. Power Actuated Tools

A. Only those employees who have been trained in their use shall operate these tools.
B. Explosive charges shall be carried and transported in approved containers.
C. Operators and assistants using these tools shall be safeguarded by proper means of eye protection devices and a safety hat.
D. Tools shall be maintained in good condition and serviced regularly by qualified persons. The material upon which these tools are to be used shall be examined before work is started to determine its suitability and to eliminate the possibility of hazard to the operator and others.
E. Prior to use, the operator shall ensure that the protective shield is properly attached to the tool.
F. Prior to use, the operator shall inspect the tool to be sure that it is clean, moving parts operate freely, and the barrel is free from obstructions.
G. A defective tool shall be tagged and immediately removed from service.
H. Powder-actuated tools shall not be used in an explosive or flammable atmosphere.
I. Tools shall not be loaded until just prior to the intended firing.
J. Only cartridges with an explosive charge adequate for the job and with proper penetration shall be used.
K. Tools and cartridges shall never be left unattended.
L. Tools shall never be pointed at any person.
M. In case of a misfire, the operator shall hold the tool in place for 30 seconds. He shall then try to operate the tool a second time and, if unsuccessful, shall wait another 30 seconds. Misfired cartridges shall be disposed of properly.

## 6. Power Lawn Mowers, Edgers, etc.

A. Employees shall ensure that all applicable guards are in place prior to using power lawnmowers.
B. All power lawn mowers shall be equipped with adequate guards, which shall remain in place while the mower is operating.
C. Prior to adjusting, inspections, or repairs, the employee shall turn off the mower and permit it to come to a complete stop.
D. When operating a power mower, the operator shall:
    1. Remove any loose material from the area to be mowed.
    2. Avoid standing in front of the discharge opening.
    3. When mowing a slope or incline, mow across the face of the slope.

*Reference:* OSHA Standard 29 CFR 1910.243 (e)

# PORTABLE LADDERS AND SCAFFOLDS

## 1. General

A. An employee shall not use a ladder that has broken, loose, or cracked rungs, side rails, or braces. Defective ladders shall be tagged and removed from service.
B. When ascending or descending ladders, employees shall face the ladder and grip the sides or rungs with both hands.
C. Boxes, crates, chairs, etc., shall not be used in place of a ladder.
D. Only one employee shall work from a ladder (except hook ladders) at one time. If the work requires two employees, a second ladder shall be used.
E. If a ladder is to be placed where the opening of a door may displace it, the door shall be locked or otherwise guarded.
F. Metal ladders or ladders with metal side rails shall not be used near energized equipment or lines.
G. Ladders shall not be painted. They shall be treated only with a transparent non-conducting material.
H. Only approved ladders owned or issued by WREC shall be used by employees.
I. When transferring from a ladder to an elevated position, the ladder side rails shall extend at least 36 inches above the landing.
J. All straight and extension ladders shall not be used unless they are equipped with nonslip bases, held in place, or otherwise secured.
K. Class, capacity ratings, and set-up instructions are clear and legible.

## 2. Straight Ladders

A. Straight ladders shall not be used unless equipped with nonslip bases, held in place, or otherwise secured.
B. Ladders shall be placed so the distance from the foot of the ladder to the base of the wall or other support is approximately one-fourth (¼) the working length of the ladder.
C. An employee shall not stand on either of the top two rungs of a ladder.
D. Ladders shall not be spliced together.
E. A ladder shall never be placed against an unstable support.
F. Ladders shall be placed on a substantial base.
G. Ladders shall not be used as scaffold platforms.
H. Portable ladders in use shall be tied, blocked, or otherwise secured to prevent their being displaced.
I. Employees shall make sure the ladder is secure whenever both hands must be used for the job.
J. 3. Step Ladders

## 3. Step Ladders

A. Employees shall not use the top step of a step ladder. (This rule does not apply to safety platform ladders.)

B. While an employee is working on a step ladder (except a safety platform ladder) at a point ten feet (10') or more above ground or floor, the ladder shall be tied, blocked, secured, or held in place to prevent it from being displaced.
C. Step ladder legs shall be fully spread and locked open when the ladder is in use.
D. Step ladders shall not be used as straight ladders. (Step ladders four feet (4') and under may be used as straight ladders when equipped with safety feet.)
E. Chainsaws shall not be used while on any ladder.

## 4. Scaffolds

A. All scaffolds shall be of sufficient strength and rigidity to safely support the weight of men and the material to which they may be subjected.
B. Employees shall not use a scaffold from four to ten feet (4'-10') in height and less than forty-five inches (45") wide unless proper guardrails are present to provide adequate protection.
C. Employees shall not use a scaffold over ten feet (10') high unless there is a standard guardrail, with a mid-rail and toe board, to provide adequate protection.
D. All scaffold planking or platforms shall be overlapped a minimum of twelve inches (12") or secured from movement.
E. Scaffold planks shall extend over their end supports by not less than six inches (6") (unless cleated) nor more than twelve inches (12").
F. Scaffolds shall not be moved without first removing all loose tools, materials, and equipment resting on the scaffold deck.
G. All scaffolds shall rest on a suitable footing and shall stand level. Movable scaffolds shall have the casters or wheels locked to prevent movement.

## COMPRESSED GASES AND WELDING

### 1. Handling and Storage

A. Care shall be exercised in handling all gas cylinders. They shall not be dropped or jarred.
B. Gas cylinders shall not be hoisted using a sling or electric magnet, nor shall they be lifted by the valve protection cap. Hydraulic tailgates or other approved methods shall be used in lowering cylinders from trucks.
C. Gas cylinders, whether full or empty, shall be secured in an upright position at all times.
D. Valve protection caps shall be kept in place except while regulators and hoses are attached.
E. Gas cylinders shall be kept away from heat and from welding or cutting operations where sparks could reach them.
F. Oxygen cylinders shall not be stored near highly combustible materials, especially oil and grease. They shall be separated in storage from fuel gas cylinders or combustible materials at a minimum distance of twenty feet (20') or by a five foot (5') high firewall.
G. Welding or cutting of any pipeline, tank, empty container, or piece of equipment shall not be performed until it is assured the object is free from highly flammable materials or an explosive mixture of gases. Before welding or cutting is begun, the hazardous materials shall be removed, or they shall be vented to the atmosphere to prevent an explosion from the expansion of trapped gases.
H. Cylinders containing chlorine, propane, or hydrogen shall not be stored in a general storeroom. They shall be stored in separate, well-ventilated, fireproof areas.
I. Cylinders shall not be allowed to come in contact with energized conductors, ground wires from electrical equipment, or welding machines.
J. A full cylinder shall be connected to a header or manifold with other cylinders only when their temperatures are approximately the same.
K. Only those fuel gas cylinders that are in actual use or are secured in place and connected to a manifold or welding set shall be permitted in the main building of a generating station. All empty and spare cylinders shall be stored elsewhere.
L. The valves of compressed gas cylinders shall be opened slowly and only with the special wrench provided.
M. Employees shall never tamper with the safety relief devices of cylinders.
N. Employees shall never force connections that do not fit.
O. Oil or grease shall not be used for lubricating valves, gauge connections, or other parts of an oxygen system.
P. Before the regulator is removed from a cylinder, the valve shall be closed, and all pressure released from the regulator.
Q. A leaking cylinder shall not be used. Such cylinders shall be taken outdoors away from sources of ignition. The cylinder shall be tagged out of service. The supervisor shall be notified.
R. A flame shall never be used to detect gas leaks.
S. The recessed top of cylinders shall not be used as a place for tools.

T. No attempt shall be made to mix gases in a cylinder or to transfer gas from one cylinder to another.
U. A sign "Danger, No Smoking, Matches, or Open Lights" or equivalent wording shall be conspicuously posted in rooms or at entrances to areas where fuel gas is used or stored.

## 2. General, Welding and Cutting

A. Welding and cutting shall be performed only by experienced and properly instructed people.
B. When welding or cutting in elevated positions, precautions shall be taken to prevent sparks or hot metal from falling onto people or flammable material below.
C. Suitable fire extinguishing equipment shall be immediately available at all locations where welding and cutting equipment is used.
D. Matches shall not be carried by welders or their helpers when engaged in welding or cutting operations.
E. A fire watch shall be maintained wherever welding or cutting is performed in locations where combustible materials present a fire hazard. A fire check shall be made of the area one half hour after completion of welding.
F. Where combustible materials such as paper clippings or wood shavings are present, the floor shall be swept clean for a radius of 35 feet before welding. Combustible floors shall be kept wet or protected by fire resistant shields. Where floors have been wet down, personnel operating arc welding or cutting equipment shall be protected from possible shock.
G. Machinery, tanks, equipment, shafts, or pipes that could contain explosive or highly flammable materials shall be thoroughly cleaned and decontaminated prior to the application of heat.
H. In dusty or gaseous spaces where there is a possibility of an explosion, welding or cutting equipment shall not be used until the space is adequately ventilated.
I. Adequate ventilation or approved respiratory equipment shall be used while welding in confined spaces or while brazing, cutting, or welding zinc, brass, bronze, stainless steel, or galvanized or lead-coated material.
J. Cadmium-bearing materials.
    1. Proper respiratory protection must be used when welding or cutting cadmium-bearing metals.
    2. Indoors or in confined spaces, local exhaust ventilation or airline respirators shall be used.
    3. Outdoors, respiratory protection such as approved fume respirators or airline respirators shall be used.

## 3. Electric Welding

A. No electrical welding machine, either AC or DC, shall be operated until the frame or case of the machine is electrically grounded. Grounding connections shall be checked prior to welding to ensure they are adequate, both mechanically and electrically.

B. Rules and instructions supplied by the manufacturer or affixed to the machine shall be followed.
C. To protect their eyes, face, and body during electrical welding and cutting, the operator shall wear an approved helmet and proper protective gloves and clothing. Helpers or attendants shall wear proper eye protection. Other employees shall not observe electric welding operations unless they use approved eye protection.
D. Proper eye protection shall be worn to guard against flying particles when the helmet is raised.
E. Welding screens shall be used whenever other people are exposed to the arc of the welding operation. Welders shall not strike an arc with an electrode when there are people nearby who might be affected by the arc.

### 4. Gas Welding

A. Suitable eye protection and protective gloves and clothing shall be worn during welding or cutting operations or while cleaning scale from welds. Helpers or attendants shall wear proper eye protection.
B. Matches shall not be used to light a torch; a torch shall not be lit on hot work. A friction lighter or stationary pilot light shall be used.
C. Welding hoses shall not be repaired with tape.
D. When welding equipment is not in use, the cylinder valves shall be closed, and the pressure in the hose released.

# WORK AREA PROTECTION

## 1. Introduction

A. Work area protection is the adequate safeguarding or protecting of pedestrians, motorists, utility workmen, and equipment by the use of adequate barriers, warning signs, lights, flags, traffic cones, high level standards, barricade rope or flagmen on approaches to work areas, excavations, open manholes or parked equipment.

B. Work area protection is accomplished by the use of good informative and protective devices, keeping in mind that a safe installation requires the use of these devices in relation to the location of the workers and the equipment involved. The use of these devices must be coupled with proper planning, design, installation, inspection, maintenance, and the use of good common sense. It is of the utmost importance that the work area be properly identified and that warning devices say what they mean to convey the message to the traveling public well in advance of arrival to the work area.

C. The public must be warned in advance, then regulated and guided safely through or around the work area. Proper work area protection shall be planned to ensure the safety and protection of the public, the workers, and the equipment.

D. The possibility of accidents occurring is greatly minimized by proper planning, design, installation, operation, and maintenance, coupled with the use of common sense.

E. All Traffic Control Procedures will use the Manual on Uniform Traffic Control Devices and The Florida Department of Transportation's regulations as guidelines. The Utility

## 2. Equipment

A. Only those signs, standards, barricades, flags, and cones that conform to state or local codes shall be used.

B. All state and local traffic codes shall be followed when providing work area protection.

C. During night operations or in periods of reduced visibility, special precautions shall be taken. Adequate warning equipment, which may include flashing lights, flares, or area illumination, shall be used.

D. Warning devices and equipment shall be removed as soon as the hazard is eliminated.

E. Warning devices and equipment not in use shall be stored in a proper manner or shall be removed from the work area.

## 3. Flagman

A. Flagmen or other appropriate traffic controls shall be used whenever there is any doubt that effective protection would be provided by signs, signals, and barricades or when required by current D.O.T. standards.

B. Flagmen shall wear a class 3 warning vest that meets current ANSI-107 standards during day and night operations.

C. Flagmen using hand signaling equipment shall ensure that signals provide sufficient warning to protect themselves and the work site.
   1. Signal flags shall be D.O.T. approved and at least 24 inches square.
   2. Sign paddles (Stop and Slow) shall be on a 6-foot staff.
   3. In periods of darkness or reduced visibility, red lights shall be used.

D. Flagmen shall place themselves in a protected position to reduce the possibility of injury from traffic.

E. Flagmen shall ensure they can fully observe the operation and shall guide vehicular traffic in such a manner as to minimize the possibility of accidents or injury.

F. When flagmen are used at both ends of a job site, reliable communications or prearranged signals shall be used to ensure proper traffic flow.

G. Flagmen shall face traffic when giving signals.

H. Flagmen shall give positive, direct signals that leave no doubt as to their meanings or instructions.

I. When flagging operations are conducted at night or in low-light situations, properly illuminated flagging stations must be in place.

J. Flagmen have to have officially trained and passed an M.O.T. training class prior to flagging in accordance with the Utility Accommodations Manual.

K. When parking line trucks, service trucks, and vans, a traffic cone shall be placed to the rear of the vehicle to remind the driver to walk around the vehicle before moving it, this includes all job sites.

**Note**: For additional information concerning work area protection, refer to OSHA Standard 29 CFR 1910.269 (w)(6) and/or the Manual on Uniform Traffic Control Devices (MUTCD) - FHWA (dot.gov).

*Reference:* FDOT: Standard Plans - FY 2023-24 (www.fdot.gov) (Maintenance of Traffic 102- series)

# VEHCILE OPERATIONS

## 1. General

A. Only those employees specifically authorized and who possess a valid license or permit for the equipment being used shall operate motor vehicles on company business.
B. Employees shall use extreme caution when operating co-op vehicles. All units shall be operated in a safe and careful manner to prevent any type of damage to the vehicle as a result of carelessness.
C. Drivers shall know and obey all state and local motor vehicle laws applicable to the operation of their vehicle.
D. The driver shall drive at safe speeds no greater than that permitted by law. Traffic, road, and weather conditions shall be given consideration in determining the safe speed within the legal limit at which the vehicle shall be operated.
E. A driver shall not permit unauthorized persons to drive, operate or ride in or on a company vehicle.
F. Seat belts shall be worn at all times by the driver and all passengers while driving or riding in company vehicles.
G. Employees shall ride in the seats provided (see exception: rule H.) Other exceptions for special conditions must be authorized by the supervisor in charge and only for extremely short, off-roadway moves. At no time shall any employee ride on fenders, running boards, or other parts of the vehicle that may present specific hazards.
H. Employees may stay in the aerial lift or bucket when going from pole to pole while on the job (exception to rule G.)
I. All vehicle loading, load securing, and operation shall be done according to applicable state and federal D.O.T. regulations.
J. Employees shall not ride on trailers.
K. Employees shall not jump on or off vehicles in motion.
L. Employees shall not use any mobile electronic device that could cause them to be distracted while driving a Cooperative vehicle, including handheld cell phones. The company radio is the only exception to this rule.

## 2. Inspection of Equipment

A. Vehicle inspections shall be documented using the SAFE App.


B. The driver shall determine that the brakes are in a safe operating condition before operating the equipment. If brakes are not working properly, they must be corrected before the vehicle is used.

C. The driver shall inspect windshield wipers frequently and see that they are in good operating condition and that the windows and windshield give sufficient visibility for the safe operation of the vehicle.
D. All lights and reflectors of vehicles shall be inspected by the driver before doing any driving, and if found defective, they shall be repaired immediately.
E. The driver shall report any defects that may have developed during the day. If the brakes are not working properly, they shall be adjusted or repaired before the vehicle is put into operation. Other items that affect safety shall be repaired prior to continued vehicle operation.
F. The driver shall secure all tools and materials before becoming mobilized, and load security should be done in accordance with state and federal D.O.T regulations. There shall be nothing on the outside of the bucket during transit, including but not limited to tool bags, tool trays, trash bags, and any other tools.

## 3. Operation

A. The operator of a motor vehicle shall clearly signal his intention of turning, passing, or stopping.
B. Upon a signal from a vehicle approaching from the rear, the driver of a company vehicle shall yield the right of way.
C. Drivers shall be prepared to stop, and the right of way shall be yielded in all instances where necessary to avoid an accident.
D. The driver of a vehicle shall be courteous toward other operators and pedestrians. They shall operate their vehicle in a safe manner and shall yield the right of way to pedestrians and other vehicles, failure to do so might endanger any person or another vehicle.
E. The driver shall stay a sufficient distance behind when following another vehicle so that he can safely stop the vehicle in the clear distance ahead.
F. Drivers shall exercise added caution when driving through residential and school zones.
G. When entering or leaving any building, enclosure, alley, or street where vision is obstructed, a complete stop shall be made, and the driver shall then proceed with caution.
H. Before a radio-equipped vehicle is driven under or adjacent to energized equipment, especially in substation areas, the radio antenna shall be lowered and clearance checked, in order to ensure that proper clearances will be maintained between the vehicle and energized equipment.
I. Ignition systems shall be turned off, radio transmitters shall not be operated, and no smoking will be permitted while refueling or operating a company vehicle.
J. When proceeding with downgrading, the clutch shall not be disengaged. Trucks, particularly if heavily loaded, shall be in a lower gear on steep grades.
K. The driver shall not operate the motor in any garage except when driving in or out, and then the motor shall be operated as little as practicable. The motor shall not be warmed up inside a garage or other enclosed spaced, nor shall the driver test motor operation in a garage unless the exhaust gas is carried directly to the outside atmosphere or doors and windows are open so that adequate ventilation exists.

L. All materials, tools, and equipment shall be secured on all vehicles before becoming mobilized.
M. Vehicular equipment, if provided with outriggers, shall be operated with the outriggers extended and firmly set as necessary for the stability of the specific configuration of the equipment. Outriggers may not be extended or retracted outside of the clear view of the operator unless all employees and the general public are outside the range of possible equipment motion.

## 4. Vehicle Maintenance

A. Jack stands must be used to support any vehicle or equipment that is lifted or raised where the employee will be under the vehicle of equipment and the lifting jack does not have a mechanical lock stop to prevent it from falling.
B. All jacks and jack stands must have clear and legible capacity ratings.
C. When a vehicle or equipment is raised or lifted on an unlevel surface, wheel chocks must be used.
D. Proper eye and face protection must be worn for the following jobs:
   1. Using handheld power tools.
   2. Using a bench mounted grinder or wire brush.
   3. While under a vehicle when you are lying on your back where something may fall into your eyes.
   4. Using compressed air for cleaning or blowing.
   5. Striking with a hammer.
   6. Anytime you are within range of flying particles caused by others or any time dust or flying particles could cause an eye injury.
   7. Anytime that you are using a flame to weld, solder, heat, or cut metal, a shaded face shield shall be worn.
   8. During electric arc welding and gas welding, employees must wear a properly approved helmet and the correct tint lens to provide protection from the arc.
E. Eye protection must be worn when servicing batteries.
F. All precautions should be taken to avoid any sparks and there must be no smoking while servicing, replacing, or jumping batteries.
G. An approved respirator must be worn during any paint spray work.
H. The appropriate dusk mask must be used when sanding and surface.
I. After completion of any paint work, all paint, thinners, and cleaners must be stored in a closed container and in an approved fireproof cabinet.
J. Lock out tag out, when a mechanic or supervisor has determined that a vehicle or piece of equipment is unsafe to use, it will be tagged out of service in a conspicuous location such as the steering wheel or entry door.
K. Climbing and working on trucks at more than four (4) feet.
   1. When an employee is given a task that will require the employee to be 4’ or greater off the ground the employee shall: Use Fall restraint systems, safety straps, lanyards,

lifelines, and body harnesses. The above shall be inspected before use each day to determine that the equipment is in safe working condition.

2. Use alternate methods of reaching the assigned task. Forklift basket, an approved extended ladder, rolling ladder, leg ladder or other safe approved measure for reaching necessary height with appropriate labels, weight limits and inspections.
3. Position the equipment to be worked on from the ground.
4. A spotter shall be present at all times for both "1" and "2" scenarios.
5. No matter which method is used the employee will follow safety protocol and OSHA requirements to complete the assigned task (3pt contact, fall restraint, PPE, etc.).

## 5. Parking

A. When vehicles must be parked on the roadway, they shall be parked on the right-hand side facing in the direction of traffic flow, whenever possible.
B. When parking on a roadway, vehicles shall park off the traveled road surface, whenever possible. When vehicles must park closer than 15 feet to the traveled road surface, appropriate warning devices shall be used.
C. Trucks or trailers stopped on any public roadway shall be protected by proper warning lights, reflectors, or red flags in accordance with state or local requirements.
D. Vehicles shall not be parked on bridges or over culverts except when necessary for work.
E. When an unattended vehicle is left parked, the driver shall make sure the vehicle is left in a safe position. The engine shall be turned off, the transmission shall be placed in the lowest gear, and the parking brake shall be set. When parked on an incline, the front wheels shall be cut into the curb or if a curb is not present, the rear wheels shall be chocked. The doors shall be closed.
F. When a vehicle is parked, the parking brake shall be set. On all line trucks, vans, and service trucks the brakes shall be set, and a DOT approved cone placed at the rear of the vehicle, this includes when parking at all job sites.
G. All vehicles equipped with airbrakes are required to use wheel chocks when the vehicle is parked or left unattended.
H. When trailers are parked or left unattended, unattached to a vehicle, two, wheel chocks are required to be in place.

## 6. Backing

A. Whenever possible, the vehicle shall be positioned to avoid the necessity of backing later.
B. Extreme caution shall be exercised when backing a vehicle, to avoid injury to persons and to prevent property damage. If another employee is present, he shall be stationed at the rear of the vehicle to assist the driver in backing the vehicle safely. The vehicle windows must be down for communication purposes.
C. When backing a vehicle which has an obstructed view to the rear:
    1. A reverse signal (back-up alarm) audible above the surrounding noise level shall be used, or

2. An observer shall signal that is safe to back.

D. During all backing operations, the vehicle operator shall:
   1. Keep a constant lookout during the entire time.
   2. Carefully check any blind areas.
   3. Back slowly.
   4. Watch both sides. Do not depend entirely on mirrors.
   5. Enlist the aid of another person to act as a guide when such help is available.

E. When an observer is available, they shall be used even if the vehicle is equipped with a back-up camera.

## 7. Stopping on the Highway

A. Stopping on the highway should be avoided.

B. When it is absolutely necessary to stop on the highway, extreme caution shall be used. Warning signals and lights shall be used including the high intensity strobe lights and emergency flashers.

C. Traffic cones, reflectors, and work signs shall be placed to give adequate advance warning.

D. If work is in progress, traffic control devices (together with flaggers, where necessary) shall be used in accordance with the Manual on Uniform Traffic Control Devices (MUTCD).

## 8. Hauling Poles or Pipe

A. Poles, ladders, pipe, etc., shall be loaded parallel with the truck length. Such material shall not extend beyond the normal width of the vehicle.

B. Materials shall be securely fastened in accordance with current DOT regulations to prevent a hazard due to shifting.

C. Material which extends more than 4 feet beyond the front or back of the truck or trailer shall have warning devices attached. During the day, DOT approved strobes shall be used in conjunction with flags; at night and during periods of poor visibility, red lights with turn signals shall be placed on the end of the pole by using the designated light bars.

D. When hauling long poles and the vehicle must enter congested areas or heavy traffic conditions, escort vehicles displaying suitable warning signs should be used.

E. The pole rack on the truck shall only be used to transport poles into areas with unconditional access. Pole trailers will be used to transport poles down the highway unless special conditions are granted by your supervisor and the safety department.

## 9. Aerial Lifts and Bucket Trucks

A. Only authorized persons who are properly trained shall use or operate this equipment.

B. The operating and maintenance instruction manuals issued by the manufacturer shall be maintained on the vehicle and followed.

C. Vehicle and bucket truck inspections shall be completed daily and documented on the SAFE App. Follow the manufacturer's recommendations and include a check of the following:
   1. Proper fluid levels (oil, hydraulic, fuel and coolant)
   2. Potential fluid leaking
   3. Wheels and tires
   4. Battery and terminals
   5. Lower-level controls
   6. Horn, gauges, lights, and backup alarms
   7. Steering and brakes. Lift components
   8. Operating and emergency controls
   9. Personal protective devices
   10. Hydraulic, air, pneumatic, fuel and electrical systems
   11. Fiberglass and other insulating components
   12. Missing or unreadable placards, warnings, or operational, instructional and control markings
   13. Mechanical fasteners and locking pins
   14. Cable and wiring harnesses
   15. Outriggers, stabilizers, and other structures
   16. Loose or missing parts

D. All bucket trucks must have a valid and legible D.O.T. annual inspection sticker.

E. The load limits of the boom and basket shall not be exceeded. Shock loading (sudden stops or starts) of the equipment shall be avoided.

F. The operator shall keep the fiberglass upper boom and lower boom sections clean and dry to maintain the nonconductive properties of the fiberglass. Periodically clean the fiberglass with mild detergent in warm water. Do not scratch the boom surface. Do not contact fixed objects such as poles and trees with the fiberglass platform (bucket). Boom inspections are to be included in the quarterly tool inspection and supervisors shall verify booms and buckets are cleaned and properly maintained monthly.

G. Aerial lifts shall not be "field modified" unless such modification is certified by the manufacturer. The insulated portion shall not be altered in any manner that might reduce its insulating value.

H. Prior to use, the equipment shall be given a warm-up period. The hydraulic system and the lift controls shall be checked and tested daily before use to determine that they are in safe working condition. Malfunctions or unsafe operational conditions shall be reported. Equipment that is not in proper operational condition shall not be used and tagged "Out of Service".

I. Lower-level controls shall not be operated unless permission has been obtained from the employee in the lift, except in an emergency.

J. The truck shall not be moved unless the boom is lowered, the basket cradled and secured, and the outriggers retracted.

K. No one shall ride in the bucket while the truck is traveling. (Exception: Employees may ride in the basket for short moves at the work location if the basket is returned to the cradled position for each move. The windows must be down to always ensure communication between the driver and the rider.)
L. When employees are in the bucket of an aerial lift, the parking brake of the vehicle shall be set. When the vehicle is on an incline, wheel chocks shall be used.
M. When outriggers are provided, they shall be used, and they shall be set on pads or on a solid surface. The truck should be approximately level when viewed from the rear. Outriggers shall not be extended or retracted outside of clear view of the operator for the reasons which include providing the safety of others and the lessoning of the possibility of property or vehicle damage.
N. When working from an aerial lift a body harness shall be worn and a lanyard that meets OSHA/ANSI standards and attached to the boom or basket. Harness and lanyards must be inspected before each use.
O. Employees shall not be permitted to transfer from a bucket to a pole or structure except for specialized transmission jobs and then only when following specific written company procedures.
P. Safety rules governing the use of hot-line tools, rubber goods, personal protective equipment and general safe practices shall also apply to work done from aerial baskets.
Q. When the boom must be maneuvered over a street or highway, necessary precautions shall be taken to avoid accidents with traffic and pedestrians.
R. The operator shall always face in the direction in which the basket is moving, and he shall see that the path of the boom or basket is clear when it is being moved.
S. Employees shall not stand or sit on top or edge of the basket or on ladders placed in the basket. Employee's feet shall be on the floor of the basket the entire time they are in it.
T. When two people are in the basket, one of them shall be designated to operate the controls. One employee shall give all hand signals, which shall be thoroughly understood by all the people concerned.
U. Climbers shall not be worn by employees while in the basket.
V. When two linemen are working from an aerial lift, extreme care shall be taken to avoid one man contacting poles, cross-arms or other grounded or live equipment while the second lineman is working on equipment at a different potential.
W. No more than one energized conductor or phase shall be worked at one time.
X. The aerial lift, together with the men in the basket and all tools and equipment, shall maintain proper clearances from unprotected energized conductors, unless isolated or insulated.
Y. When using pneumatic and hydraulic tools in a bucket, the operator shall be sure that hoses or lines do not become entangled in the operational controls.
Z. When parking bucket trucks DOT approved cones will be placed at the rear of the vehicle or trailer.
AA. A circle check shall be performed prior to relocating or moving the bucket truck.

BB. No safety device or alarm shall by passed or rigged to be out of service.

CC. While in transit there shall be no equipment, tools, tool bags, trays, or any other foreign object left outside of the bucket.

DD. Operators and groundmen shall be initially and annually thereafter certified in bucket rescue.

EE. Truck barricading, the purpose of barricading a truck when work is being done on or within the minimum approach distance or primary energized lines is for the protection of employee(s) or person(s) on the ground.

FF. Under no circumstances shall the uninsulated portion of any boom be brought within the minimum approach distance of energized primary/transmission voltage.

GG. Employees on the ground must stay clear of a truck whether grounded or not, while any part of the truck, worker or material is within the minimum approach distance or a primary energized line. Prior to making any contact with the truck, employees must communicate with the truck operator to clear the hazardous area. (If an employee is on a truck during this type of situation, he must remain there until all parts of the unit are clear of the minimum approach distance). Exception: When it is impractical for the truck operator to clear the hazardous area due to supporting an energized conductor, an employee on the ground may briefly contact the truck for the purpose of retrieving tools or material if the following conditions are met:

HH. The employee on the ground asks permission from the truck operator to contact the truck.

II. The truck operator ceased all work activity.

JJ. The truck boom and/or aerial lift is maintained in a stationary position.

KK. The energized conductor being supported by the truck is insulated and under positive control (conductor secured to the bucket).

LL. The truck operator grants permission and monitors the employee on the ground while truck contact is made.

MM. After the tool or material is retrieved and the employee on the ground is clear of the truck, the employee on the ground shall give an all clear to the truck operator and the work activity may be returned.

*Reference*: For additional information concerning aerial lifts, refer to OSHA Standards 1910.67 - Vehicle-mounted elevating and rotating work platforms and 29 CFR 1910.269.

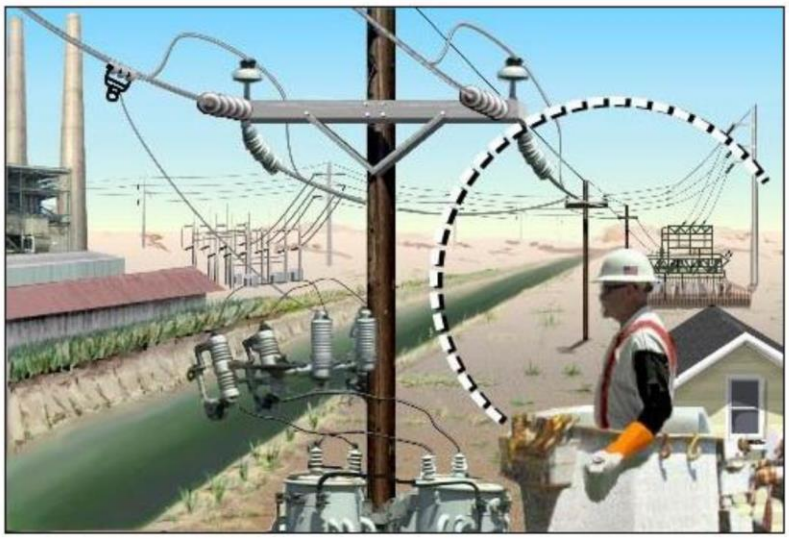
## 1. General

Electrical equipment and lines shall always be considered as energized unless they are positively proven to be de-energized and properly grounded. All grounds shall be inspected before each use. **IF IT ISN'T GROUNDED--IT ISN'T DEAD!**

A. Only qualified and authorized employees shall work on or near energized lines or equipment.
B. Employees shall report immediately to their nearest foreman or supervisor any defective line, apparatus or tool or other condition which in their judgment may be dangerous either to persons or property or likely to interrupt or delay service.
C. Electrical equipment and lines shall always be considered as "live" unless they are positively known to be dead and grounded. Before starting to work, a preliminary inspection or test shall be made to determine what conditions exist. Extreme care shall be exercised when handling common neutral conductors as high voltage may be encountered.
D. Secondary windings of current or series transformers shall be short circuited before any instrument or other device connected in the circuit is removed or disconnected.
E. There shall be a designated person in charge at each work site.
F. Work site emergency action shall be discussed during every job briefing.
G. Supervisors should routinely visit crews to observe work habits and address crews' needs.
H. Supervisors should conduct quarterly tool and truck inspections and forward the inspection to the Safety Department.
I. Before performing any gloving (rubber glove work) on primary energized distribution lines, the automatic reclosing feature of the nearest up-line circuit interrupting device shall be made inoperative, placed on hot line tag. This does not include installing insulating cover-up on the conductor.
J. Employees must not cut, open, or repair the system neutral conductor without de-energizing and grounding the primary conductor, unless the neutral conductor can be safely bridged with a grounding cable or length of suitable size conductor. (Safety rules and safe work practices on the use of rubber gloves and protective grounding equipment must be followed.)
K. A visual check of phase wires for potential hazards should be made before work begins.
L. No work shall be done from an aerial lift/bucket truck on the primary energized line unless a qualified control operator is present to operate the bottom controls in case of an emergency. This shall be discussed in the job briefing.
M. No rubber glove work should be performed on any energized primary lines during rain or heavy fog conditions.
N. Protective equipment including rubber gloves shall be put on when within ten feet of energized lines or equipment. The protective equipment shall not be removed until the employee is completely out of reach in this area.

## 2. Minimum Approach Distances (MAD)

**Minimum Approach Distances**



The above schematic is showing the minimum approach distance for a line worker. Depending on the voltage of the line (see table below), a worker or conductive object, must keep the minimum distance specified below between them and any energized part of the power line. See the link below for altitude correction factors to the minimum approach distances in the table. Changes in weather have been factored into the minimum approach distances.

| Table R-6---Alternative Minimum Approach Distances for Voltages of 72.5 kV and Less[1] | | | | |
|---|---|---|---|---|
| **Nominal voltage (kV) Phase to phase** | **Distance** | | | |
| | **Phase-to ground exposure** | | **Phase-to-phase exposure** | |
| | **m** | **ft** | **m** | **ft** |
| 0.050 to 0.300[2] | Avoid Contact | | Avoid Contact | |
| 0.301 to 0.750[2] | 0.33 | 1.09 | 0.33 | 1.09 |
| 0.751 to 5.0 | 0.63 | 2.07 | 0.63 | 2.07 |
| 5.1 to 15.0 | 0.65 | 2.14 | 0.68 | 2.24 |
| 15.1 to 36.0 | 0.77 | 2.53 | 0.89 | 2.92 |
| 36.1 to 46.0 | 0.84 | 2.76 | 0.98 | 3.22 |
| 46.1 to 72.5 | 1.00 | 3.29 | 1.20 | 3.94 |

[1] Employers may use the minimum approach distances in this table provided the worksite is at an elevation of 900 meters (3000 feet) or less. If employees will be working at elevations greater than 900 meters (3000 feet) above mean sea level, the employer shall determine minimum approach distances by multiplying the distances in this table by the correction factor in Table R-5 corresponding to the altitude of the work.

[2] For single-phase systems, use voltage to ground

3. Flexible Protective Equipment (Rubber, Synthetics, etc.)

A. Employees shall not touch or work on any exposed energized lines or apparatus except when wearing protective equipment approved for the voltage to be contacted.
B. When work is to be done on, or within the minimum approach distance of any energized distribution primary lines, all energized and grounded conductors, guy wires, or equipment within reach or extended reach of any part of the body shall be covered with protective equipment, except that part of the conductor on which the employee is working.
C. On multi-phase energized primary lines, protective line equipment shall be installed in a manner that will protect the employee from a multi-phase arc hazard.
D. When performing live-line glove work on any multi-phase pole or equipment, placing the circuit interrupting device on hot line tag and the use of rubber sleeves by the lineman is required. This includes reaching through covered multi-phase lines.
E. When working on energized lines or apparatus, including the installation of protective devices, work should be done from below, if possible.
F. In applying flexible protective equipment, an employee shall always protect the nearest and lowest wires first, protecting himself as he progresses. In removing rubber protective equipment, the reverse order shall be maintained.
G. Flexible blankets shall not be used on the ground without protecting them from physical damage and moisture by means of a tarpaulin, canvas, or protective mat.
H. To avoid corona and ozone damage, rubber protective equipment shall not be allowed to remain in place on energized lines or apparatus overnight or for more than one eight-hour period unless approved by the supervisor in charge. When left for extended periods of time or in adverse weather conditions, cover-up shall be re-tested before each use. When cover-up is required to be left for extended periods of time, rubber protective equipment should be replaced with hard cover-up when available.
I. Line hose, hoods, blankets, line guards, etc., shall be visually inspected before each job and cleaned as necessary.
J. Flexible protective devices shall be stored in special compartments on trucks and elsewhere where they will not be subjected to damage from tools or other equipment.
K. Line hose, hoods, blankets, line guards, and other insulated cover-up shall be dielectrically tested not to exceed six (6) months.
L. Bare communications conductors shall be treated as energized lines and shall be protected accordingly.

*Reference*: For additional information concerning flexible protective equipment, refer to OSHA Standards 1910.137 - Electrical Protective Equipment.

4. Use and Care of Rubber Gloves

A. Only qualified or authorized employees or those under the continuous supervision of an experienced workman shall work on energized lines or equipment.

B. Workers shall wear rubber gloves with leather protectors when working on energized lines or equipment.
C. When the use of rubber gloves is required, they shall be worn when within 10 feet of any energized lines or equipment.
D. Rubber gloves with leather protectors shall also be worn:
    1. While working on overhead distribution lines and the line technician is within ten (10) feet of lines or equipment which are not effectively grounded, and which may be or may become energized at any voltage.
    2. From the ground up, when climbing poles with any wires or equipment energized at any voltage.
    3. Required by supervision.
    4. Making capacitance tests on cables.
    5. Operating manually controlled air break switches.
    6. Opening and closing manually operated oil circuit breakers.
    7. Opening, closing, removing, or replacing hot clamps, fuses, or fuse doors or cutouts, even when using an approved switch stick or hot line tool. Approved eye and face protection shall also be worn.
    8. Making tests to determine if lines are de-energized and applying and removing grounding devices.
    9. Working on or near series street lighting circuits even though they are disconnected from the source of power.
    10. Repairing series fixtures or attachments on circuits even though they are disconnected from the source of power.
    11. Pulling in wires or handling other conducting materials near circuits, apparatus or equipment which is, or may become energized.
    12. Working on or near telephone or other circuits that are subject to induced voltages from energized high voltage circuits unless such circuits to be worked are adequately grounded.
    13. Contacting any energized secondary conductor or equipment outside of the ten (10) feet primary rule.
    14. Repairing neutral conductors.
    15. Installing or removing meters from energized meter sockets.
    16. Employees shall put on and take off rubber gloves in a position where they cannot reach the established ten (10) feet distance.
    17. Properly rated rubber gloves with protectors must be worn by employees when opening energized pad-mounted or metal-enclosed electrical equipment.

    *Reference:* Rules applying to URD work in the Underground Distribution Section.

E. 5 KV (Red Label) rubber gloves shall only be issued to those employees who are not normally in contact with primary voltages. Exceptions are made based on the supervisor's request and the Safety Department's approval.

F. When performing live line glove work on any pole, structure, or equipment with only single-phase voltage available, placing the circuit interrupting device on hot line tag shall be mandatory unless the Crew Chief determines on a case-by-case basis that the type of work being performed is non-hazardous. If the Crew Chief makes that determination, all crew members shall be notified, including any other line personnel who may arrive at the job site after the first job briefing has occurred.
G. While working on single-phase overhead lines, the use of rubber sleeves by the Journeyman Lineman will be at their discretion. Apprentices in the gloving program are required to wear sleeves on single-phase overhead lines until completion of their apprenticeship and their obtainment of Journeyman or Journeyman Qualified status.
H. When performing live line glove work on any multi-phase pole or equipment, placing the circuit interrupting device on hot line tag and the use of rubber sleeves and sleeves by the lineman is required.
I. Rubber gloves shall never be worn inside out or without leather protectors. They shall be exchanged at any time they become damaged, or the employee to whom they are assigned becomes suspicious of them. Leather protectors or over gloves shall not be worn except when in use over rubber gloves.
J. Rubber gloves shall be inspected for corona cracks or other damage and shall be given an air test at least once each day while in use, preferably at the beginning of the work period and at any other time when their condition is in doubt. They shall be checked before each use.
K. Gloves, when not in use, shall be kept in canvas bags or other approved containers and stored where they will not become damaged from sharp objects or exposed to direct sunlight. They shall never be folded while stored, nor shall other objects be placed upon them.
L. Rubber gloves shall be stored in the glove bag with the cuffs down to permit drainage, better ventilation and reduce the possibility of damage.
M. Glove and sleeve canvas bags shall not be used for additional storage and shall be free of any foreign objects including tools, lights, batteries, and other equipment.
N. Employees shall exchange their rubber gloves every three (3) months for periodic testing by an independent testing laboratory. Gloves shall not be used that are out of testing intervals and shall not be on the trucks.

**Maximum Use Voltage for Rubber Gloves**

## ASTM Labeling Chart
### Natural Rubber Electrical Insulating Gloves

| Class Color | Proof Test Voltage AC/DC | Max. Use Voltage AC/DC | Insulating Rubber Glove Label |
|---|---|---|---|
| 00 Beige | 2,500 / 10,000 | 500 / 750 | 10 ASTM D120 CLASS 00 EN60903 TYPE I MAX USE VOLT 500V AC |
| 0 Red | 5,000 / 20,000 | 1,000 / 1,500 | 10 ASTM D120 CLASS 0 EN60903 TYPE I MAX USE VOLT 1000V AC |
| 1 White | 10,000 / 40,000 | 7,500 / 11,250 | 10 ASTM D120 CLASS 1 EN60903 TYPE I MAX USE VOLT 7500V AC |
| 2 Yellow | 20,000 / 50,000 | 17,000 / 25,500 | 10 ASTM D120 CLASS 2 EN60903 TYPE I MAX USE VOLT 17000V AC |
| 3 Green | 30,000 / 60,000 | 26,500 / 39,750 | 10 ASTM D120 CLASS 3 EN60903 TYPE I MAX USE VOLT 26500V AC |
| 4 Orange | 40,000 / 70,000 | 36,000 / 54,000 | 10 ASTM D120 CLASS 4 EN60903 TYPE I MAX USE VOLT 36000V AC |

## 5. Climbing and Working on Poles

A. All poles and structures shall be carefully inspected before climbing to ensure that they are in a safe condition for the work to be performed and capable of sustaining the additional or unbalanced stresses to which they will be subjected.
B. Body belts, straps, fall restraint devices, and climbers shall be inspected before each use, and if defects are found, the defective device must be replaced as soon as possible and before use. Supervisors will inspect climbing gear quarterly. A person shall not climb a pole without a ground person present within a reasonable helping distance.
C. Where poles or structures may be unsafe for climbing, they shall not be climbed until made safe by guying, bracing, or other adequate means. The use of an aerial device shall always be the first consideration.
D. Wires shall not be attached to or removed from a pole or structure until it is certain the pole or structure will withstand the altered strain.
E. Workers shall not wear their climbers while driving or riding in vehicles or when doing work on the ground, on ladders, platforms, or aerial devices. The gaff covers should be removed at the last minute prior to climbing and replaced as soon as possible after coming down from a pole.
F. Gaffs on climbers shall be kept within safe length limits, properly shaped, and sharp.
G. Employees shall not work on an elevated pole or structure without first securing themselves with a safety strap.
H. Only approved belts, straps, climbers, and fall restraint devices that meet OSHA/ANSI standards shall be used, and they must be issued by WREC.
I. Metal hooks, chains, etc., for holding tools or tape shall not be attached to body belts. Leather or other non-conducting material shall be used for this purpose.
J. The safety strap shall not be placed around a pole above the uppermost pole attachment position, except where the pole top or attachment is above eye level. It shall not be used on pole steps, cross-arm braces, insulators, insulator pins, wires, rotten or otherwise weak cross-arms, or on attachments that are being moved. When it is necessary to attach to a cross-arm, the safety strap shall never be placed beyond the outside cross-arm attachment. It shall be placed so that it will not be cut by line equipment or twisted or fouled by material that may give way under strain.
K. Employees shall not trust their weight to guy wires, pins, braces, conductors, or other such equipment that might prove unstable.
L. When two or more employees are to work on the same pole at the same time, each shall reach the working position before the next leaves the ground. They shall descend the pole one at a time.
M. When climbers are stored, the sharp points shall be covered with acceptable covers.
N. When working on overhead structures, employees shall solidly attach a hand line near their work area before work is begun unless special conditions reasonably prohibit it.
O. When working primary voltage from a pole, an eight-foot hot stick shall be used.

P. A pole will not be climbed unless using a proper fall restraint device. Fall restraint equipment shall be used by employees working at elevated locations more than four (4) feet above the ground on poles, towers, or similar structures. All fall protection equipment shall be inspected prior to use each day, and at any time the condition of the fall protection equipment becomes questionable. If the condition of the fall protection equipment is in question, the employee shall call it to the attention of their immediate supervisor. Unsafe or defective fall protection equipment shall be tagged to prevent their use and shall be immediately removed from service or repaired or replaced.

Q. Live line gloving is not permitted while climbing. If a repair is necessary, that the backyard aerial devices cannot access then the line shall be de-energized and grounded before work commences.

*Reference*: WREC: SuperSqueeze Instructions and Warnings

## 6. Working on Energized Lines with Live-line Tools

A. Only qualified employees shall be certified to perform Live-Line (Hot-Stick) work.
   1. Employees must have completed their pre-apprenticeship and competence in the associated task to be eligible to use a hot stick on energized conductors/equipment, with the discretion of the Journeyman in charge.

B. Company procedures relating to tool use and maintenance. as well as work processes, shall be strictly adhered to.

## 7. Series Street Lighting Circuits

A. Before a series street lighting circuit is opened and work is started, one of the following procedures shall be used:
   1. Circuit shall be visibly disconnected from the source of supply by opening, disconnecting switches or other absolute cutouts, and hold cards shall be attached to such disconnects or cutouts. Dependence shall not be placed in time switches or other automatic devices.
   2. Circuit shall be properly bypassed to avoid an open-circuit condition.

## 8. Working on Transformers

A. The primary leads of a distribution transformer shall be considered energized at full voltage until both the primary and the secondary leads have been disconnected or it has been determined that the secondary circuit to which it is attached is not energized from other transformers.

B. The cases of all transformers connected to a source of supply shall be considered as being energized at the full primary voltage unless they are adequately grounded.

C. Employees shall not stand on or otherwise contact transformer cases while working on or near energized circuits.

## 9. Hoisting Cables or Conductive Material

A. Wire rope or other conductive material shall not be used to raise transformers, poles, or any other equipment or materials near energized lines except:
   1. When the wire rope is rigged a sufficient distance below all energized wires to prevent the possibility of electrical contact between the energized wires and the wire rope or conductive material being raised or
   2. When the wire rope and any conductive material being raised are adequately protected or
   3. When energized lines and equipment are adequately protected.

B. Use of wire ropes as a hoist line shall be discontinued when it becomes worn, deteriorated, or damaged to a degree that is unsafe.

C. Metallic slings (chain or cable) shall not be used near energized equipment.

D. Whenever possible, chain slings shall not be used for hoisting purposes.

E. Positive control of wire rope shall be maintained at all times.

F. Synthetic hoisting and pulling lines and ropes shall not be considered as non-conductive unless properly maintained to preserve their insulating qualities. (Also see Handling Materials, II, and R.)

## 10. Working on Capacitors

A. All procedures relating to capacitors in the Operations Manual must be strictly adhered to.

B. All capacitors shall be tested according to standard operation procedures before re-energizing.

C. Line capacitors shall be considered at full voltage until they have been disconnected from the line using a load break tool and the terminals short-circuited and discharged to ground by an approved method. The terminals shall not be short-circuited until the capacitors have been de-energized for at least five (5) minutes.

D. Employees shall use an eight (8) foot hot stick while shorting and grounding capacitor terminals.

E. The terminals of used line capacitors in storage shall be shorted.

## 11. Stringing or Removing De-Energized Conductors

A. Prior to stringing operations, a briefing shall be held setting forth the plan of operations and specifying the type of equipment to be used, grounding devices and procedures to be followed, crossover methods to be employed, and the clearance authorization required.

B. Where there is a possibility of the conductor accidentally contacting an energized circuit or receiving a dangerous induced voltage buildup, to further protect the employee from the hazards of the conductor, the conductor being installed or removed shall be grounded or provisions made to insulate or isolate the employee. The adjacent circuit should be placed on a hot line tag.

C. If the existing line is de-energized, proper clearance authorization shall be secured, and the line grounded on both sides of the crossover or the line being strung or removed shall be considered and worked as energized.
D. When crossing over energized conductors in excess of 600 volts, rope nets or guard structures shall be installed unless provision is made to isolate or insulate the workers from the energized conductor. Where practical, the automatic reclosing feature of the circuit interrupting device shall be made inoperative. In addition, the line being strung shall be grounded on either side of the crossover or considered and worked as energized.
E. Conductors being strung in or removed shall be kept under positive control by the use of adequate tension reels, guard structures, tie-lines, or other means to prevent accidental contact with energized circuits.
F. When working on bare conductors, clipping and tying crews shall work between grounds at all times. The grounds shall remain intact until the conductors are clipped in, except on dead-end structures.

## 12. Stringing Adjacent to Energized Lines

A. Prior to stringing parallel to an existing energized transmission line, a competent determination shall be made to ascertain whether dangerous induced voltage buildups will occur, particularly during switching and ground fault conditions. When there is a possibility that dangerous induced voltage may exist, the provisions of subparagraphs (B) through (J) shall be followed.
B. When stringing adjacent to energized lines, the tension stringing method or other methods that preclude unintentional contact between the lines being pulled and any employee shall be used.
C. All pulling and tension equipment shall be isolated and insulated or effectively grounded and used in conjunction with grounding mats.
D. A ground shall be installed between the tension reel setup and the first structure in order to ground each bare conductor and overhead ground conductor during stringing operations.
E. During stringing operations, each bare conductor and overhead ground conductor shall be grounded at the first structure adjacent to both the tension and pulling setup and in increments so that no point is more than two (2) miles from a ground.
F. The grounds shall be left in place until conductor installation is completed.
G. Rolling grounds shall be used in conjunction with the tension rig while pulling wire near, adjacent to, above, or below energized conductors. The rolling grounds must be inspected before each use.
H. Such grounds shall be removed as the last phase of aerial cleanup.
I. Except for rolling-type grounds, the grounds shall be placed and removed with a hot stick.
J. Conductors and overhead ground conductors shall be grounded at all dead-end or catch-off points.
K. Work on dead-end structures shall require grounding on all de-energized lines.

L. Grounds may be removed as soon as the work is completed, provided that the line is not left open-circuited at the isolated tower at which work is being completed.
M. When performing work from the structures, clipping crews and all others working on conductors or overhead ground conductors shall be protected by grounds.
N. Rubber gloves shall be worn during the stringing rope process when the rope can come in contact with any energized conductor or equipment.

## 13. Grounding

A. All previously energized conductors and equipment shall be treated as energized until tested to be de-energized and grounded.
B. New lines or equipment may be considered de-energized and worked as such where:
   1. The lines of equipment are grounded or
   2. The hazard of induced voltages is not present, and adequate clearances or other means are implemented to prevent contact with energized lines or equipment and the new lines or equipment.
   3. When an airgap is obtained from sources of potential back feed and sources of unintentional reclosures and grounded.
   *Reference*: NESC 444A-444E.
C. Bare wire communication conductors on power poles or structures shall be treated as energized lines unless protected by insulating materials.
D. De-energized conductors and equipment that are to be grounded shall first be tested for the presence of voltage.
E. Protective grounds must be installed and removed with a four (4) foot hot stick in an aerial device and an eight (8) foot hot stick while climbing, using the proper procedures.
F. Protective grounds must be cooperative approved and furnished and be rated for the maximum available fault current exposure.
G. When working from an aerial lift/bucket truck on newly strung wire near energized lines, grounds may be omitted when wire is worked as energized.
H. Installation of grounds: The following is an excerpt from the National Electrical Safety Code. These are minimum standards for compliance; any other company policies, rules, or unusual circumstances calling for more stringent work practices will take precedence. "All grounds, including personal grounds and equipment grounds, must be tested annually by an independent testing laboratory and must have stickers/tags with test intervals that do not exceed twelve (12) months."

## 14. National Electric Safety Code 444 (NESC)

A. When placing temporary protective grounds on a normally energized circuit, the following precautionary measures shall be observed:
   1. Size of Grounds: The grounding device shall be of such size as to carry the induced current and maximum fault current that could flow at the point of grounding for the time necessary to clear the line.

2. Ground Connections: The employee making a protective ground on equipment, or lines shall first connect one end of the grounding device to an effective ground connection.
3. Test of Circuit: The de-energized conductors and equipment that are to be grounded shall next be tested for voltage except where previously installed grounds are clearly in evidence. The employee shall keep every part of the body at the required distance by using insulating handles of proper length or other suitable devices.
4. Completing Grounds: If the test confirms no voltage is present or the local operating rules so direct, the free end of the grounding device shall next be brought into contact with the de-energized part using insulating handles or other suitable devices and securely clamped or otherwise secured thereto. Where bundled conductor lines are being grounded, grounding of each sub-conductor should be made. Only then may the employee come within the distances from the de-energized parts specified in Rule 444D or proceed to work.

## 15. Pole Hauling and Temporary Storage

A. All required permits must be on all vehicles, copies of which will not be acceptable. State of Florida Department of Transportation escort and routing requirements will be stated on the permit.
B. The trailing end of a load of poles shall be marked with flashing strobe lights and flags during the day and red lights with turn signals at night. As an additional precaution, warning flags or lights may be placed in the center of long loads. A qualified employee shall be used for flagging when necessary. Certain conditions may require escort vehicles. Local authorities shall be contacted wherever possible.
C. If it becomes necessary to store poles at the location where they are to be set, they shall be so placed that they will not interfere with traffic.
D. If poles left on or near streets, highways, or walkways overnight create a hazard, they shall be safeguarded by red lights or well-lighted warning signs.
E. Poles shall be placed, chocked, or blocked so that they will not roll.
F. Employees shall not remain on a pole pile while poles are being hoisted.
G. Poles loaded on a trailer shall be securely fastened with at least three (3) tie-downs for the entire cargo.
H. When a load of poles is within working distance of the ground, load binders shall be installed so that they can and will be operated by employees while standing on the ground.
I. Employees shall not ride on pole dollies or trailers.
J. Lifting tongs with a capacity rating are required anytime a pole is suspended off the ground, and skidding tongs are not acceptable to suspend a pole from the ground. Cable slings are also acceptable when setting poles.

## 16. Setting and Removing Poles, Including Steel Pole Procedures

A. If any holes are left unfilled at the end of the work period, they shall be protected with substantial coverings.
B. All persons not engaged in pole-setting operations shall be kept out of the work area.
C. No one shall be on a gin pole when it is being used to raise another pole.
D. While setting or removing poles between or near energized conductors:
    1. If safe clearance cannot be maintained, the conductors shall be de-energized, covered with protective devices, spread apart, and/or a pole guard shall be used to minimize the risk of accidental contact.
    2. Workers handling the butt of the pole shall wear rubber gloves whether or not cant hooks, peaveys, or slings are used. The worker shall have been properly trained about the dangers involved in this process prior to doing it on his own. The worker shall wear dielectric overshoes when feasible. If not feasible, another secondary protection to protect the worker should be used.
    3. Until a pole is positively secured from moving against an energized conductor, no one is to step on or off the truck, nor shall an employee who is standing on the ground touch any part of the truck without using rubber gloves.
E. When pikes are used to hold poles in place while holes are being backfilled, they shall be firmly secured until the backfill is sufficient to hold. When a pole is being "canted" or "hooked," the pikes shall be held.
F. Employees shall not stand or pass under a suspended load or be adjacent to, over, or under a loaded winch line.
G. Employees engaged in handling or working on poles shall wear suitable gloves.
H. Hoisting equipment operators shall accept signals only from the employee specifically designated. The operator shall obey a stop signal given by anyone.
I. Setting steel poles in line with live circuits:
    1. Check for the possibility of de-energizing the line.
    2. Cover and spread out the energized conductors for optimal clearance.
    3. Double insulating the line conductor when pole guards/wraps are not used.
    4. Use a dedicated observer.
    5. Placing the upstream circuit breaker or re-closer on hot line tag.
    6. Ground the digger truck to the best ground electrode available, which is the neutral on our distribution circuits.
    7. Ground the steel pole with a separate connection to the system neutral. The connection should be made on the pole near ground level at the provided connection point.
    8. Workers on the ground controlling the butt of the pole shall wear rubber gloves and insulated overshoes. The worker must take all necessary steps to only contact the pole with their rubber gloves. Two groundmen should be used in necessary situations and insulated cant hooks should be available if these conditions are not met.

9. All work orders that require steel poles shall be carefully planned by the Line Superintendent, Crew Chiefs, and the associated Journeyman. It will be at the supervisor's discretion when additional protection is required, including pole guards. When optimal clearance cannot be obtained on any energized conductor, pole guards will be required. All situations where pole guards are not used will be determined by Superintendents and Crew Chiefs.
10. All poles that are set over the line, including transmission poles, will follow the same procedure, but the pole will not be required to be grounded. Added emphasis on the spotter is recommended in these situations.

## 17. Equipment Grounding

A. Any equipment without a tested and approved insulated insert in the lower boom that will properly isolate the chassis if the lower boom should become energized shall be individually and adequately bonded to the mainline neutral. In instances where grounding creates a greater hazard or cannot be safely utilized, only with supervisions' approval will barricading be an acceptable practice. This is to ensure that no ground personnel will inadvertently come into contact with an energized piece of equipment.
B. All equipment grounds shall be solidly bonded to the frame and chassis with frequent checks or tests to determine their current carrying capabilities.
C. Equipment grounds are required to be tested by an independent testing laboratory initially before use and annually thereafter.
D. All employees on the ground must stay clear of a truck, whether grounded or not, while any part of the truck is within the minimum approach distance of a primary energized line.
E. Equipment grounds, while in use, shall be uncoiled the entire length of the ground.

## 18. Ropes (Synthetic Fiber-Manila)

A. A rope shall not be overloaded or dragged over rough or sharp objects.
B. Short bends over sharp-edged surfaces should be avoided.
C. Kinks shall be removed before any strain is put on a rope.
D. When not in use, rope shall be dried and stored properly and kept free from mechanical damage and excessive heat and dryness.
E. Rope shall be examined regularly for cuts, worn spots, burns, and rot. The rope shall be untwisted at various places and inspected for poor fiber and dry rot.
F. The outward appearance of rope shall not be accepted as proof of quality or strength.
G. The safe loads, as specified by the manufacturer, shall not be exceeded.
H. Handlines shall be a minimum of half inch (½") diameter and have a strength equivalent to half inch (½") manila.
I. Eyes and splices shall be made in accordance with the instructions given by the rope manufacturer. Splicing should only be done by qualified personnel in accordance with manufacturers' recommendations.

## 19. High Voltage Live Line Work

A. In order to perform live line gloving, an employee must be certified to do so. Certification to be trained on live line glove work shall be given to any employee who meets the following minimum standards:
   1. Employee has 2½ years of service with the Cooperative.
   2. Has a minimum classification of Apprentice - Step 2.
   3. Has obtained a written letter of recommendation from their Superintendent, District Manager, and the Safety Director.

B. This certification will permit gloving only under the following standards:
   1. Trainees will be permitted to glove only after verbal permission has been obtained from the Journeyman in charge or supervisor. Permission must be obtained from the Journeyman for each individual job. Permission will only be granted in those instances where time, weather, and other existing hazards permit.
   2. Trainees shall only glove on the same pole or structure on which a certified (to glove) Journeyman Lineman is working. This "in-air" supervision can be accomplished by the use of two separate aerial devices. When using two separate devices, different potentials may be worked independently, provided that the trainee has the appropriate level of knowledge and training.
   3. The rule is one-to-one, one apprentice to one Journeyman.

C. At no time will on-ground supervision alone be considered adequate. To be certified to glove, a lineman must have 4½ years of line experience and enough time in the training program to satisfy his immediate supervisors as well as the Safety Department that he is knowledgeable enough to become qualified to glove.

D. If a certified line technician leaves their job description for more than one year, it will be necessary to complete hands-on refresher instructions to become recertified (re-take the gloving test).

E. The following conditions must be met when live line work is performed:
   1. Rubber gloving of energized electric distribution circuits shall be done only from approved insulated equipment.
   2. All personal safety equipment (hard hats, safety glasses, rubber gloves, sleeves, FR clothing, etc.) shall be used. Hard hats shall be worn whenever work is being performed.
   3. Aerial unit used shall be maintained in good condition, free from contamination, and conform to Cooperative rules regarding testing. A daily visual and manual inspection according to manufacturers; suggested procedure shall be followed.
   4. A step-by-step procedure for specific jobs should be developed by qualified supervisors and then rigidly adhered to.
   5. Aerial baskets should be positioned so that workers are in the clear as much as possible.
   6. Cover-Up:

a. All potentials, including grounds, within reaching or falling distance, except the portion of the conductor being worked on, shall be covered with corona-resistant cover-up material.
b. Physical contact with cover-up equipment on energized lines and apparatus shall not be made by any part of the body other than that protected by rubber gloves or sleeves.

7. The lineman shall avoid difference in potentials by limiting work to one conductor or potential at one time. When two linemen are working in the same aerial lift, constant attention is necessary to avoid the possibility of working on separate phases at the same time.
8. Direct contact work with rubber gloves on energized high-voltage lines should not be done under fog, rain, lightning, or snow conditions.
9. A handline may be hung from the structure or pole but should not be hung from the bucket or boom.
10. Recommended minimum crew for this type of work is two men; one man should be on the ground at all times. This man should remain focused on the work being done in the aerial device and all safety issues that pertain to that job and the safety of the crew and the general public.
11. It is unacceptable to open or close a fuse barrel with rubber gloves only; an acceptable hot line tool must be used.
12. When installing an insulated mechanical jumper soon after installation, the jumper shall be double covered wherever it is resting or contacting a different potential.

F. When the use of rubber gloves is required, they shall be worn when within ten (10) feet of any energized lines or equipment. While performing live-line work on single-phase overhead lines, the use of rubber sleeves by the Journeyman or certified lineman will be at the Journeyman Lineman's discretion. The circuit reclosing device shall be placed on hot line tag.
G. When performing live-line glove work on any multi-phase pole or equipment, placing the circuit reclosing device on hot line tag and the use of rubber sleeves by the lineman is required; this includes reaching through multi-phase lines.
H. At any point that the head, torso, or any part of the arm beyond the elbow extends through covered multi-phases, double insulating the conductor is required.

## 20. Dielectric Overshoes

A. Based on OSHA's revision of the General Industry foot protection standard, an employer must ensure workers use protective footwear as a supplementary form of protection when the use of protective footwear will protect the workers from electrical hazards.
B. Dielectric shoes will be required anytime there is a potential for step voltage. The hazards must be discussed in the job briefing and understood by all participants. These conditions may include but are not limited to the following scenarios:
1. Anytime that an employee is entering and working within an energized substation location and the status of the grounds and ground grid are not known.

2. Overshoes will be worn by all employees when there is switching in or around the substation.
3. Handling the butt of any type of pole being set or removed from an energized line or that has the potential to reach the energized line or equipment during the task.
4. Anytime grounding of equipment or poles is taking place on an energized line by ground personnel.
5. During any energized primary switching scenario involving underground or overhead facilities or equipment.
6. During the process of walking out an ungrounded primary line to determine the cause of an outage or trouble call if the status of the line is unknown. It should also be considered if there is a possibility of generator or transformer back feed, induced voltage, or full voltage from multi-phase contact.
7. Used in association with grounding mats.
8. Dielectric overshoes shall be worn anytime there is a possibility of step potential.

C. Dielectric overshoes are NOT to be worn while working in an insulated aerial device.
D. It is not and should not be a practice of linemen to contact any vehicle that is in the process of energized work procedures. The potential for step and touch voltage is at its greatest while the operator of the vehicle is performing energized work. It is not a requirement for linemen to wear dielectric shoes while on the ground during an energized work process with the understanding that personnel must stay clear of the vehicle while work is in progress. This requirement must be discussed in the job briefing.
E. When working in scenarios covered by the above-mentioned requirement and conditions involve mud and water that is a greater depth than the dielectric footwear's height, a re-evaluation of the job regarding these circumstances should be considered and discussed with the person in charge in the job briefing.

## 21. Safety Observer

A. During all live line work, one member of the work team shall be designated as the Safety Observer. The Safety Observer's role is to alert the work team to any potentially unsafe actions or lack of compliance with an approved work procedure or technique. The Safety Observer shall:
   1. Be competent to understand the particular work being observed,
   2. Be positioned at a suitable location to observe the work being performed,
   3. Have the authority to temporarily suspend the work at any time,
   4. Maintain effective and immediate communication with the work team at all times,
   5. Not perform any other task while live line work is in progress, and
   6. Suspend all work in the event of having to leave the site or significantly change position until they have returned/reached a new location or they have been replaced.
B. The Safety Observer's role may be rotated among members of the work team, for example, to reduce fatigue. When this occurs, it shall be formally handled that all members of the work party are aware at all times of who is performing the role of the Safety Observer.

# UNDERGROUND (URD) DISTRIBUTION

## 1. Introduction

Underground Residential Distribution (URD) systems have a number of apparent advantages over overhead systems; however, they also have some disadvantages, such as confined working spaces, closer clearances between energized parts, and greater exposure to all types of grounds. In most cases, if protective devices are not used, the employee will be in direct contact with the ground or grounded equipment. This contact completes half of an electrical circuit. If these contacts are not avoided, or protection against contact is not used, serious injury can result.

## 2. URD – General

A. Before a URD transformer enclosure is opened, all unauthorized persons, including the public, shall be required to leave the work area and remain clear of all hazards involved in the work.
B. When underground equipment is being located, previously buried short sections of scrap cable could provide false indications of the actual position of permanent conductors. Therefore, all scrap cables, regardless of length, are to be removed from the job site, or noted on a map for future reference.
C. During cable pulling operation, reels shall be secured; trailers shall be chocked to prevent moving, and all equipment grounded where applicable. The use of all required personal protective equipment shall be mandatory.
D. During initial energizing, all personnel shall remain in the clear.
E. All cable and equipment shall be installed, marked, and labeled according to WREC Engineering Specifications.
F. On all three-phase underground installations, the primary wire feeding the transformer shall be connected ABC top to bottom. A phase shall be marked with red tape, B phase shall be marked with white tape, and C phase shall be marked with blue tape. This process will give a clockwise rotation in the transformer using the rotation meter, “red, white, and blue,” from left to right.
G. All clearances shall conform to the National Electric Safety Code (NESC) and the WREC Construction and Operations Manual.
H. All pad-mounted equipment shall be securely locked and guarded against unauthorized entry. Wherever possible, two separate means of locks shall be used, such as a padlock in addition to the pentel bolt.
I. Whenever feasible, two linemen with proper equipment should be at the work site when working on any energized transformer or equipment or at any location where a hazardous situation exists.
J. Hard hats, safety glasses, and FR clothing shall be worn whenever underground work is performed. Reference the section on Dielectric Overshoes in the Safety Manual for requirements regarding overshoes.

K. All employees who perform cable locates are to be qualified, trained, and show proficiency. Employees shall be trained in and be familiar with the safety-related work practices, safety procedures, and other safety requirements.
L. Rubber gloves will be worn from lock to lock when working in energized URD equipment, and there shall be two linemen present with 30 KV rubber gloves.

### 3. Opening and Closing Circuits – URD

A. When a URD circuit has opened, the route of the circuit should be patrolled for obvious hazards before the circuit is reclosed.
B. An approved switching tool and rubber gloves shall both be used when switches (including secondary breakers) in an energized circuit are opened or closed.
C. Certain conditions may require the use of specialized safety equipment (grounding grids, insulated mats, overshoes, etc.). Supervision shall be consulted before proceeding with any such work.
D. Any URD primary circuit shall be de-energized by opening one or more devices. Energizing shall be done with load break elbow connectors, load break fuse cutout at the riser pole, load break tool, or other approved devices.
E. Eye or face protection, hard hats, overshoes or insulated mats, rubber gloves and FR clothing shall be worn or used when primary switching operations are performed.

### 4. Grounding – URD

**Note**: A capacitance charge can remain in a URD cable after it has been disconnected from the circuit and a static type of arc can occur when grounds are applied to these cables.

A. All URD cables and equipment, including services that have been energized or could become energized from any source, shall be considered as energized until the equipment is positively proven to be de-energized and has been grounded. Approved cover up material shall be used when working on or near energized cables or equipment when the possibility of contact with live parts exists or as supervision directs.
B. Before doing work on any de-energized primary circuits or equipment: (1) a visible open break shall be provided; (2) A voltage test shall be made, and in most applications, the initial cut shall be made with 6' hot cutters or remote-controlled cutters. (3) Finally, the equipment shall be grounded.
C. During the grounding procedure, not only shall the cable that is intended to be grounded be tested and verified to be de-energized, but it is also required to use the proper grounding kits that have been provided. No "homemade" devices will be considered a suitable substitute.
D. All grounds that have been energized for any reason shall be brought in for testing before they are re installed. Periodic testing of all grounds shall also be required.
E. When work is to be done on equipment or cables of an underground system, precautions to prevent back feed shall be taken. This shall include grounding of the secondary conductors where applicable.

F. De energized cables shall be grounded at a point as close to the work as possible before work is started.
G. All underground cables and apparatus energized above 600 volts shall be de energized and grounded before cables are cut into or spliced.
H. Grounds should be tested annually by an independent testing laboratory and individually marked so easy identification can be established.

## 5. Grounding Procedure for Secondary Underground Work (Meter Technicians)

A. When work is to be completed on equipment or cables of an underground system, precautions must be taken.
   1. Verify location of work to take place by Meter Technician employees.
   2. Employees assigned to de-energize shall verify equipment location and primary cables associated with work to be completed.
   3. Assigned employees shall verify, isolate, test, and ground according to WREC grounding procedures utilizing all proper PPE and safe work practices.
   4. Assigned employees shall tag at ALL affected locations, tagging work to the Meter Department.
   5. Tags must be installed at the location of work to be completed, with the location numbers of the cables that have been isolated, grounded, and tagged to the Meter Department.
   6. Once all steps have been completed, employees must report to their immediate supervisor to notify them of the completion of the work.
   7. Supervisors must then notify the Meter Department by email that the work location in reference is ready to be worked.
   8. Meter Technician shall arrive and see the referenced equipment to be worked, which has been tagged out to them, along with all other isolated and grounded locations.
   9. Meter Technician shall only proceed to secondary bay with the proper tag that is tagged out to the Meter Department
   10. Once verified, the Meter Technician must verify that the secondary bay is de-energized utilizing all necessary PPE and rated voltmeter.
   11. Once all work is completed by the Meter Technician, only then may the tag on the associated equipment that was worked is to be removed by the Meter Technician. All other tagged out locations must remain for the linemen to remove, once they have permissions from their supervisor.
   12. Supervisors will be notified by the Meter Department once all work has been completed and their tag has been removed from their work site.
   13. Line crews will be ready to re-energize once they receive permissions from their supervisors and that all verifications have been satisfied.

## 6. Rubber Glove Use – URD

A. Rubber gloves shall be worn before any URD compartment or enclosure (including a service pedestal) is opened.

B. Rubber gloves shall be worn when energized primary cables are moved, handled, or protected.
C. Rubber gloves shall be worn when work is performed on energized secondaries and services.
D. Rubber gloves shall be worn when working on or contacting a neutral and when on or in energized equipment or systems.
E. Rubber gloves shall be worn at any other time when contact with energized surfaces is likely.
F. Rubber gloves shall be worn when making capacitance tests on cables.
G. Rubber gloves shall be worn until the cable is positively proven grounded.

**Note**: Supervisors may require sleeves and/or other protective devices as the situation directs.

## 7. Work on Energized Equipment – URD

A. When work is performed on energized cables or apparatus, employees shall take extra precautions in the use of necessary rubber protective equipment, in observing adequate clearances, and in using proper tools in order to prevent short circuits.
B. When energized underground transformers or other equipment are unlocked and opened, it shall be directly attended to by qualified personnel. It shall be kept closed and locked at all other times.
C. When it is necessary to parallel sections of an open loop, it shall be determined that the separate sections of the loop will phase together.
D. A primary or secondary system neutral on any energized circuit shall not be opened under any circumstances.
E. Elbow connectors provide a great deal of flexibility in switching and system sectionalizing. However, only those connectors designed and approved for load break capabilities shall be used to connect or disconnect an energized circuit.
F. Only one energized secondary or service conductor shall be worked on at any one time, and protective devices shall be used to insulate or isolate it from all others.
G. An approved insulated tool shall be used to move an energized elbow from one position to another. This tool should be a minimum of four (4) feet long. A minimum eight (8) foot hot stick shall be used if two line technicians are pulling or pushing on the same hot stick (e.g., two line technicians are pulling a URD elbow from an electrical device).
H. Transformers shall not be raised, lowered, or shifted from one location to another while energized, except when slight movement is needed to straighten or level the pad due to earth settlement. Extreme caution shall be exercised during this type of operation.
I. Only one end of the cable shall be worked on at a time.

## 8. Excavations and Trenching – URD

A. OSHA 1926.652(a) Protection of Employees in Excavations.
   1. Each employee in an excavation shall be protected from cave-ins by an adequate protective system designed in accordance with subsections (b) or (c) of this section

except when (i) excavations are made entirely in stable rock or (ii) excavations are less than five (5) feet (1.52m) in depth and examination of the ground by a competent person provides no indication of a potential cave-in.

2. Protective systems shall have the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied or transmitted to the system. When an excavation is less than five (5) feet deep, a protective system is NOT required for an excavation. OSHA standards mandate that all excavations five (5) feet or deeper be protected against collapse with either shoring or shielding.

B. Sloping is the most common protection system used for excavations. It is by sloping the sides of the trench to a safe angle. The trench is sloped on both sides. The safe angle to slope the sides of an excavation varies with different kinds of soil.
   1. Type "C" Soil Sloping requirements:
      a. A ratio of 1½: 1,
      b. For every 1½ ft. horizontally, the height of the slope increases by one (1) foot, creating a 34°-degree angle in the slope.

C. Mechanical excavating equipment shall be used with extreme caution in areas where other utilities are buried. It shall be determined as far as possible that all utilities have been properly located before work is started and locates are valid within date and time. All damaged property of any kind shall be immediately reported to a supervisor.

D. If electric cables are damaged, the following steps shall be taken:
   1. If the damaged cable belongs to a power company other than WREC, that company shall be notified immediately.
   2. The area shall be barricaded, and the public kept out until hazardous conditions can be eliminated.

E. If gas lines are damaged, the following steps shall be taken as soon as possible:
   1. Cease all excavation operations and turn off all equipment.
   2. Evacuate the area immediately and eliminate all sources of ignition.
   3. The hole shall be left open to allow the gas to dissipate into the atmosphere.
   4. The local fire department shall be notified immediately.
   5. The gas company shall be notified at once.
   6. The local police department shall be notified.

F. If communication cables are damaged, the communication company shall be notified at once.

G. When trenches are left open, warning devices, barriers, barricades, or guardrails shall be placed to adequately protect the public and employees.

H. At the end of each day's work, as much of the trench as practical shall be closed. No more trenches shall be opened at one time, more than is necessary.

I. Extreme care shall be utilized when excavation around or near underground cables. This may include the use of rubber gloves and/or other specialized equipment.

J. "The walls and faces of all excavations in which employees are exposed to danger from moving ground shall be guarded by a shoring system, sloping of the ground, or some other equivalent means." OSHA 1926.651
K. All trenching equipment shall be considered hazardous equipment, and all employees shall stand clear of auger and chain when feeding wire into a chute.
L. Employees other than the operator shall not be permitted to ride on tractors or trenchers.
M. Employees shall stand clear of all equipment to allow for operator error. At no time shall employees be permitted to work underneath any suspended equipment.
N. No employee shall be allowed to operate this equipment unsupervised until properly trained to do so.

*Reference*: OSHA Standards 29 CFR 1926.650, 29 CFR 1926.651, and 29 CFR 1926.652

*Reference*: WREC: Trenching and Shoring Video

# DIELECTRIC TESTS

## 1. Rubber Gloves and Sleeves

A. Rubber gloves and sleeves issued for service shall be retested on work practices.
B. No test interval may exceed ninety (90) days for gloves and sleeves.
C. Gloves or sleeves that have been electrically tested but not issued for service shall not be placed into service unless they have been electrically tested within the previous twelve (12) months.
D. Gloves and sleeves shall be inspected before each use and stored in approved glove bags and stored in a bin without sharp objects.

*Reference*: WREC: Care and Use of Rubber Goods

## 2. Cover-Up Material

A. Insulating blankets, hoods, line hoses, and all other insulated material shall be retested based on work practices and exposure to harmful substances (including remaining on the line for prolonged periods).
B. No test interval shall exceed six (6) months for all insulating blankets, hoods, line hose, and all other insulated materials.

## 3. Insulated Boom and Buckets

A. All insulated aerial devices shall be both structurally and dielectrically tested based on work practices and conditions.
B. All insulated booms and buckets shall be retested every six (6) months by WREC personnel according to established company standards.
C. They shall also be retested annually by an independent test facility.

# SUBSTATIONS

## 1. Supervision

A. Orders and instructions shall be directed through the first level of supervision on the job. Immediate supervisors shall not be bypassed unless an emergency exists.

## 2. Housekeeping

A. All employees shall maintain neatness, orderliness, and good housekeeping in and around the substation site. No loose material or debris shall be left on the ground inside an energized substation.
B. Any open trenches or holes left inside a substation should be completely barricaded off to protect the area.

## 3. Access

A. All fences and gates will comply with engineering standards. All substation fences, gates, structures, and equipment are interconnected to a grounding grid for safe access and operation. If, for any reason, a substation fence must be expanded or removed for construction purposes, a temporary fence offering similar protection shall be provided. Interconnection with ground must be maintained between temporary and permanent fencing.
B. Gates must remain closed and locked if not attended to by a qualified employee. At no time will unauthorized personnel be allowed into a substation area unaccompanied. Gates may remain open inside the substation while work is in progress as long as visual observation of an attendant is available to allow a safe means of escape in case of an emergency.
C. Upon entering a substation or any other locked area, employees shall contact the Control Center and notify them of what station they are entering. Employees should do a thorough visual inspection of the substation prior to entering to verify there has not been an unauthorized breach of entry at the site, creating an unsafe condition. Upon exiting the substation, the Control Center should be notified that all personnel have exited the substation and all gates are secured.
D. National Electrical Safety Code compliant signs shall be attached to all substation gates, fences, and structures, providing visibility to the public. Attached to all substation entrance gates must be a sign that is clearly legible stating the site's specified address.
E. All substation structures, equipment and fences shall be grounded to the specifications of the National Electrical Safety Code. If, upon entry into a substation, it is confirmed that grounds are missing and/or stolen, the substation supervisor should be notified immediately, and there should be no entry into the substation site until deemed safe by the substation supervisor or a substation Journeyman.
F. Fence gaps, including at washouts and gates, should never exceed four (4) inches. All chain link fences should be in good shape with minimal rust. All barbwires shall be securely mounted with no breaks in the strands.

G. All gate fastening mechanisms and hardware shall provide a substantial barrier to unauthorized entry.
H. Dielectric overshoes are required in an energized substation unless the status of the grounds and ground grid is known to be good. The grid is required to be tested on an annual basis and documented for access to all employees.

### 4. Job Briefings

A. A documented job briefing shall be held by each crew or by different crews as a group when two or more crews are assigned to work in the same location, regardless of their varied duties. A plan shall be developed for the job at hand, and the plan shall be clearly pointed out. Work shall not proceed until this has been accomplished, and the plan shall not be changed without another job briefing. If at any time the task at hand has changed from the original job briefing, all work must be immediately stopped in a safe manner, and a new revised job briefing needs to be developed to reflect the workflow changes.
B. Before beginning work on any equipment or structure, the employee in charge of the work shall see that all the workers on the crew are familiar with the equipment and task at hand. The employee in charge needs to clearly state the boundaries of the work zone. The employee in charge should confirm which equipment is energized near the work area and specifically state all known hazards associated with the task at hand. The limitations of the working space must be specified along with what disconnects are open, tagged, and locked out, disconnecting the equipment to be worked on from the source of the supply voltage. Boundaries should be barricaded off, showing where the acceptable safe work zone pertains.

### 5. Servicing and Maintaining Batteries

A. All batteries should be installed in well-ventilated areas. Substations equipped with a control house must have a hydrogen gas monitoring system in place.
B. Smoking, sparks, or flames shall not be permitted around batteries. No smoking signs shall be prominently posted on all control house doors or battery cabinets.
C. During the installation, testing or maintenance of batteries, employees shall wear proper personal protective equipment.
D. Portable eyewash stations for rinsing eyes or skin shall be available to the employee.
E. Insulated tools must always be used when installing or disassembling batteries to prevent a possible short circuit of the battery cell.

### 6. Work Near Energized Equipment

A. When work is to be done in an energized substation, all applicable minimum approach distances must be maintained.
B. When work is to be performed in an energized substation, it should be clearly stated what facilities are energized prior to starting the job in the job-briefing safe app. It should also be determined prior to starting any job inside an energized substation what personal

protective equipment is required, and precautions should be taken for the safety of all employees involved.

C. Any time an energized switch or fuse is operated, all applicable personal protective equipment must be worn, and all equipment must be tagged if out of its normal state.
D. No employee with less than a year of experience shall be allowed to work on any energized equipment.

## 7. Working from Elevated Heights

A. Anytime it is required to climb a steel structure, employees must have two non-breakaway lanyards on to ensure they are always clipped off while in the process of climbing. Lanyards must be inspected before each use and adjusted properly with their associated harness. The harness and lanyard must be FR.
B. Employees shall use approved safety belts or self-retracting non-breakaway lanyards as required when working in elevated positions of more than four feet above the ground.
C. Extension ladders should be securely tied to a rigid structure anytime they are used. Fiberglass ladders are the only ladders approved for use inside a substation.

## 8. Grounding

A. Unless they are positively proven to be de-energized and grounded, all circuits and electrical apparatus shall always be considered energized.
B. When all designated switches and disconnects have been opened, rendered inoperable, and tagged, visual inspection and test shall be conducted to ensure that equipment or lines have been de-energized.
C. Using an AMPROBE high voltage detector or similar device, test a known energized conductor, verifying your test set is working correctly. Next, touch every suspected de-energized conductor with the tester. Finally, a retest should be performed on a known energized conductor to verify your voltage detector test set is working correctly.
D. Protective grounds shall be applied on the disconnected lines or equipment to be worked on.
E. Guards and barricades shall be installed to prevent accidental contact with energized lines or equipment around the designated work zone.
F. Anytime grounds are installed from any place other than an insulated bucket; it is required to wear protective overshoes and Class 4 insulating gloves, and use an insulated shotgun stick with a minimum length of eight (8) feet that has an approved dielectric test date.

## 9. Mechanized Equipment

A. Use of vehicles, cranes, and other equipment in restricted or hazardous areas shall always be monitored by designated, authorized personnel.
B. All mobile cranes and derricks shall be effectively grounded when being operated near energized lines or equipment.

## 10. Control Panels

A. Work on or adjacent to energized control panels shall be performed by designated, authorized employees.
B. Precautions should be taken to prevent accidental operation of relays or other protective devices due to jarring, vibration, or improper wiring.
C. Any time a low-voltage power source is de-energized, regardless of the voltage type (AC or DC), lockout/tagout procedures shall be in place to prevent accidental energizing of equipment.

## 11. Switching

A. Anytime it is required to switch inside a substation, the control center operator must be notified prior to obtaining a clearance order.
B. The appropriate FR clothing, rubber gloves, rubber overshoes, eye protection, and hard hat shall be worn anytime a gang operated switch, hook stick disconnect, or fuse is operated.
C. Two station sticks should always be available anytime switching is performed using hook stick disconnect switches. The sticks must be within their required dielectric testing dates and be clean with no visual defects.
D. Anytime it is required to isolate a recloser inside a substation that is equipped with a square bay without a transfer bus, the circuit should be backfed outside the substation on the distribution system. The only exception to bypassing a breaker inside the substation and avoiding protection on the circuit is if an emergency condition exists that time does not permit waiting for line department personnel to assist with back-feeding via the distribution system outside the substation.
E. No energized switching is permitted inside a substation without a Journeyman Substation Technician onsite.
F. Any switch that is out of its normal state must be tagged out of service.

## 12. Working on a Bypassed OCR Inside an Energized Square Bay or Transfer Bus Bay

A. Anytime it is required to work on a bypassed breaker inside an energized substation, the only work that should be permitted is from the top of the bushing down. Prior to working on the OCR, it must be fully isolated with the load and source side disconnects opened, tagged, tested, and grounded. If the clearance between the de-energized breaker that needs to be worked on and an energized circuit adjacent to it presents a problem, it should be required to back feed both the breaker that needs to be worked on and the adjacent circuit on the distribution line outside the substation, allowing both circuit's disconnects on the source and load side to be opened, isolating the equipment for safe work distances. A thorough pre-job planning needs to be completed to determine the best course of action to take depending on the proximity of energized equipment near the barricaded work zone.
B. Anytime it is required to work on top of a breaker inside an energized substation with a transfer bus, both the circuit that needs to be worked on and the adjacent circuit to what

needs to be worked on should be backfed on the distribution line outside the substation if your clearance is 8'6" or less, center line to center line of the breaker frames in question with an adjacent circuit. If the distance between center lines of breaker frames is 12' or more, this rule can be omitted, and only the circuit that needs to be worked on can be isolated and grounded to allow the appropriate approach distances. All switching can be performed inside the station through the transfer bus if this is needed.

## 13. Substation Outages and Abnormal Conditions

A. Anytime a substation outage occurs because of a differential fault, sudden pressure relay trip, or the substation is equipped with high side fuse protection, the following test must be performed at a minimum with engineering approval before the substation can be re-energized. The relays should be downloaded and analyzed by engineering before permission is given to energize a substation if a differential fault has occurred.
    1. Digital Gas Analysis with acceptable values.
    2. Transformer Turns ratio with acceptable values.

B. If a substation recloser's control is believed not to be functioning properly, a documented control test must be performed prior to the control being placed back into service. The control should be downloaded prior to executing the diagnostic testing, including the electronic device's event history, and setting configuration.

C. Anytime the load tap changer's Vacuum Interrupter Monitoring system is tripped off, "locking out" the LTC, the substation should be back fed. The oil should be drained, and the tap changer compartment needs to be opened to perform a complete internal inspection to confirm the cause of the tap changer lockout. The monitoring system should never be reset until the cause of the lockout is established and the fault is remedied.

## 14. Mobile Substation/Mobile Circuit Switcher

A. Anytime the mobile substation is transported from one location to another, an acceptable TTR and Megger test must be performed at a minimum once the trailer is fully set up before it can be energized.

B. The mobile substation and mobile circuit switcher must be fully barricaded off prior to energization. Only qualified personnel will be permitted to enter the barricaded space once the units are in service.

*Reference*: WREC: Substation Switching and Tagging Procedures
*Reference*: WREC: Substation Ground Grid Testing
*Reference*: WREC: Substation Overshoe Procedures

# DISPATCHING AND CLEARANCES

## 1. General

System Operators shall be trained and familiar with navigating, monitoring, and operating Worldview Map Views. This shall include operating control points, tripping and closing OCRs, placing reclosers on/off non-reclose and ground trip block, setting reclosers on hot line tag, energizing/de-energizing circuit switchers and transmission breakers, implementing load management, and starting/stopping consumer-based generators.

A. Operators shall be trained and familiar with the following Worldview Map Views:
   1. Substations
   2. Substation Load and Fans
   3. WREC Transmission Lines
   4. Under Frequency
   5. Substation Amps
   6. Comm Lines
   7. Net Summary
   8. Generators
   9. Substation Transformer Statuses
   10. Intellirupters and AST
   11. System Page
   12. Firm Load Shed Pages
   13. Load Management
   14. Substation Voltages
   15. One-Shot and Ground Trip Block Pages

## 2. Alarm Views

A. The alarm view is a page of chronological events that occur on WREC's SCADA system. Any alarm that is received must be reviewed and acknowledged by the operator.
B. Multiple alarms can be acknowledged one at a time or all at once. It is the operator's responsibility to check each alarm before acknowledgment.
C. Any control point that is operated by an operator, such as closing any device or placing circuits on non-reclose or hot line tag, will appear on the alarm view/event history.
D. System operators are required to log in with their own credentials at shift change. Acknowledged alarms and any operated control point are logged on the event printer as to what operator made the acknowledgment or operated a device.

## 3. System Operator Responsibilities

A. After normal business hours, system operators monitor not only the SCADA system but also monitor, enter, and dispatch companywide outages, which includes but is not limited to answering phone calls, outage entry, dispatching and assigning crews, troubleshooting, and restoring outage tickets. Operators are also responsible for taking customer service

calls not only pertaining to outages but also billing questions such as prepaid metering and reconnections of delinquent accounts. Operators and dispatchers shall be familiar with and able to perform the following:

1. Crew Manager
2. Outage Entry
3. Outage Graphics
4. Outage History
5. Outage Manager
6. Outage Merge
7. Outage Modify
8. Outage Phone Calls
9. Outage Split

## 4. Crew Call

A. Crew Call is a Milsoft-based software program for calling WREC personnel. System operators are responsible for calling assigned trouble crews and/or extra crews when needed. Districts are responsible for entering their own trouble crews and completing any personnel not available for callouts. The System Operator Supervisor has administrative rights to edit calls per District Superintendent's requests.

B. Reconnect requests after the hours of 10:00 PM must be given out to a two-person crew for any reconnect of service. It will be acceptable for the single person on call to reconnect any requests received up until 10:00 PM, providing the work can be completed before 10:30 PM.

## 5. Switching and Tagging

A. Operators are responsible for issuing switching and tagging forms when requested by field personnel.

B. Switching and tagging requests, as well as any work related to the request, are only to be communicated via company radio.

C. Times should be logged for hot line tag, non-reclose, ground trip block, OCR open/close, and generator run times. Times shall also be added for VFIs and distribution 3-phase OCRs.

D. Once work is complete and all operations are back to normal, the switching and tagging form may be released only by the person to whom it was issued.

E. Three-part communication is required between SCADA operators and field personnel at all times to ensure communication is clear.

F. Please refer to the link below for Distribution and Transmission Switching Procedures, including 3-part communication.

*Reference*: WREC: Switching Procedure 3 Part Communication

*Reference*: WREC: Substation Switching and Tagging Procedures

## 6. Duke Energy, Florida and Seminole Electric

A. WREC system operators shall communicate and coordinate daily with Seminole Electric and Duke Energy.
B. WREC operators are required to contact Seminole Electric any time WREC switching entails load being moved to a different metering point.
C. WREC operators are required to create load transfers when the load is switched, and when the load transfers are complete, and then send an email to Seminole when loads are back to the original metering points.
D. WREC operators shall coordinate with Duke Energy Transmission when any transmission switching is performed, whether it be Duke's transmission or WREC performing make-before-break operations.
E. Three-part communication shall be practiced when coordinating with Seminole or Duke.

## 7. System Operator Shift Change Communication

A. Operators use several communication methods throughout their shift and at shift change. Scheduled and/or unscheduled switching is communicated via email or verbally, and also notated on the operator's notes page.
B. Any important reminders or current events shall also be communicated, including open switching and tagging orders, circuits out of their normal state, and any other irregularities.
C. Morning shift changes shall include discussions on crews that are on rest time. It shall be the lineman's responsibility to keep track of their allotted 16-hour work shift and notify the operator(s) when another crew needs to take over.
    1. The employee shall track their hours of consecutive hours worked and hours worked in a 24-hour period and make sure a replacement crew has been notified through the Control Center when they reach 14 hours of their 16-hour maximum amount worked.
    2. An employee will be allowed to work 16 hours in a 24-hour period. The 24-hour period will start after the employee has received 8 consecutive hours off and returns to work.
D. If trouble crews are on sleep time and outages are reported after 06:00, Crew Call is implemented by the Operators to call in the next available Journeyman and Apprentice on each list.

## 8. Public Safety

A. In the event the Control Center is notified of a vehicle versus pole and able to accurately identify the location, the Control Center Operator shall place the affected circuit on hot line tag.
    1. Upon the crew's arrival and initial scene survey, the status of the circuit should be reevaluated.

2. It shall be understood that hot line tag is required regardless of the pole location.
3. This includes incidences anywhere on the circuit, including the single-phase taps with its own isolation device.
4. It should be understood tripping of the circuit breaker due to other causes while on hot line tag is possible, but we will not sacrifice public safety in any situation.
5. Inclement weather shall not be the determining factor in placing a circuit recloser on hot line tag. Exception: If it is determined without a doubt that the pole has secondary low voltage only attached to it, such as a lift pole or streetlight pole, then the circuit does not need to be placed on hot line tag since this will not provide a safety benefit.
6. The System operators are responsible for collecting as much information as possible when responding to other circumstances, beyond a vehicle versus pole, involving the status of a circuit. It is the System Operator's responsibility to rely on their available data and training to make appropriate decisions but never sacrificing the safety of our crews, members of the cooperative, or the general public.

B. Any circuit constructed with a static line that experiences a circuit operation must be patrolled as soon as possible.

## 1. Communications

A. Switching orders, clearances, and instructions shall be communicated by radio. Should circumstances prevent clear communications by radio, only then may cell phones be utilized. The Control Operators shall record such scenarios and report the same to their supervisor for follow-up and possible resolution.
B. Conversations must be clear, concise, and conducted in a business-like manner. Precise communication is critical to safety.
C. Personnel must exchange information using proper line and equipment terminology so that all parties have a clear understanding of the work to be performed.
D. Echo protocol shall be utilized for all switching operations.

## 2. Person in Charge/Designated Person

A. In accordance with OSHA regulations, the person in charge will be the person to whom the clearance order is issued and, therefore, is responsible for all associated in the field switching under the specific clearance order and all switchmen/workers involved in the associated switching.

## 3. Planning

A. Regardless of whether it is preplanned or emergency switching, the Control Operator and the person in charge shall communicate and agree upon a switching plan prior to performing any switching. The person in charge has the responsibility of assuring all workers involved in the proposed switching clearly understand the switching plan and their role in the switching plan.

## 4. Switching Procedure

A. The Control Operator shall oversee the complete switching plan and monitor all relevant SCADA data, statuses, and other information related to the switching plan.
B. The person in charge will coordinate the switch from the substation that is being taken out of line or being placed back in line.
C. It shall be the responsibility of all personnel participating in the switching plan to be attentive to each step of the plan and halt the progression of the process should a safety and/or reliability concern arise.
D. Switches shall remain locked, and “extend-o-sticks” shall remain collapsed for switches without handles until switch numbers are verified, and approval for switch operation has been authorized.
E. All switches shall be visually checked prior to operation for identification of the correct switch number, switch functionality, and the current status of the switch (open, closed).
F. Echo protocol shall be utilized for all switching operations.
G. The person in charge shall communicate the switching intention prior to the switch operation to the Control Operator, who must confirm/approve the switch operation.

H. All switches shall be visually checked after a switching task for proper operation and secured as required.

# MOBILE COMMUNICATIONS PROCEDURES

## 1. Objective

Establish clearly defined procedures governing the use and application of mobile communications equipment.

## 2. Definitions

Mobile Communications equipment will include radios and mobile telephone equipment, including devices for sending and receiving e-mail, text messages, and any other forms of wireless communications.

## 3. Application

This policy is applicable to all activities, locations, and employees of the Cooperative while engaged in work activity or operating Cooperative equipment and vehicles.

## 4. Policy Content

A. **Standards**
The standard method of communication to and from a vehicle has historically been the WREC two-way radio system. Productivity and safety are enhanced when conversations are broadcast publicly. The radio shall remain the primary tool for this purpose and shall always be used for "switching-related" communications.

B. **Cellular Communication**
As cell phone use has increased and is becoming the norm for nearly everyone, WREC recognizes the necessity of providing clear guidelines to either provide or allow the use of cell phones while employees are "on the job." All employees are expected to exercise discretion while at work, either in an office situation, in a company vehicle, or on a job site. Excessive personal calls during the workday, regardless of phone ownership, can interfere with employee productivity and create an unnecessary distraction.

C. **Restrictions**
Cell phone use, texting, sending and receiving e-mail, and other similar forms of communication are prohibited while driving a company vehicle, operating equipment, engaging in safety-sensitive tasks, or performing other functions that may reasonably affect personal or public safety.

D. **Liability**
Employees who are charged with traffic violations involving the use of a cell phone will be solely responsible for all liabilities that result from such actions.

# INSTALLATION AND REMOVAL OF RUBBER INSULATING EQUIPMENT

## 1. Installation

A. When workers are about to undertake work that requires the use of rubber goods, they should climb or raise the bucket to a position just below the first line of conductors.
B. They should then determine their working position and what lines and other conductors should be covered.
C. The required rubber goods should then be requested.
D. Before ascending further, the workers shall make certain that their rubber gloves and leather protectors are in good order and on their hands.
E. Rubber goods shall be raised in a secure manner.
F. At least one ground person should be observing as workers get in position and while performing work. The designated shall be identified in the job briefing.
G. As the workers advance to their working position, they shall cover all conductors with which any possible contact may be made.
H. This should be done from below whenever possible.
I. At no time shall they pass through energized equipment before it is covered with rubber goods.
J. All conductors and grounds adjacent to the working space shall be considered, including any possible change of position that may be necessary.
K. When a line hose is applied to vertical or sagging wires, it should be fastened to the line to prevent slipping from position.
L. When blankets are used for covering items such as dead ends, pot heads, secondary racks, and transformers, they shall be secured in place by plastic clamp pins or ties.
M. After the protective equipment has been placed, care shall be taken to prevent injury to the rubber from tie wires, spurs, or other sharp objects.
N. Although all conductors have been covered, entire reliance shall not be placed on rubber goods as any protective device may become defective.

## 2. Removal

A. When the job is completed, the protectors should be removed in the reverse order of installation.
B. Remote conductors are cleared first, and the wires nearest the workers last.
C. After being detached, the equipment should immediately be lowered to the ground.
D. Under no circumstances shall rubber goods be thrown or dropped from the pole.

APPRENTICE IN TRAINING

1. Pre-Apprentice

A. Within 90 days of employment, a pre-apprentice shall be issued rubber gloves. The pre-apprentice shall be trained in the proper use and care of rubber gloves and understand test intervals along with glove ratings. Rubber gloves shall be stored in a canvas bag free of foreign objects. A pre-apprentice within their 90 days of employment can only use rubber gloves in the following situations:
   1. Assisting in the setting of a pole near energized lines after they are properly trained on the associated hazards and have demonstrated proper technique prior to assignment. This will only be done after the approval of the Journeyman and supervisor.
   2. When being trained in the installation of meters. Meter identification and verification training must be completed and demonstrated, as well as understanding the associated hazards. This will require approval from the Journeyman and supervisor.
   3. When aid is required to assist in the event of an emergency.

   **Note:** All associated PPE is required for these tasks, including FR clothes. If the employee has not received their FR clothes, then they will not be eligible to complete the tasks.

B. After six (6) months of employment, a pre-apprentice is eligible to take their extend-o-stick qualification. They must understand the proper use and storage of an extend-o-stick. How to properly clean and care for fiberglass equipment. Can ensure that an extend-o-stick is in good working order and free of defects. Understands and can recognize equipment that an extend-o-stick is used on and the task that must be performed (hot line tag, ground trip block, refusing a cut out). Pre-apprentice must retrieve a faulted fuse and successfully refuse and reenergize a cutout (this will be done in a controlled environment). Must demonstrate how to set a trip saver, a single-phase breaker, and a three-phase breaker on hot line tag. Once complete, the pre-apprentice, with the discretion of the Journeyman, can use an extend-o-stick in the field. If, at any time, supervision deems the pre-apprentice incompetent, the pre-apprentice will be required to re-take the test in a controlled environment.
C. After nine (9) months of employment, a pre-apprentice will be introduced to secondary voltages. This will be done under the supervision of a Journeyman or Journeyman qualified. Pre-apprentices shall be trained in the proper PPE required, know and understand the voltages to be worked, how to make and break connections (neutral first to make last to break), verifying secondaries, proper connections, and wire brushing of connections. These tasks are to be performed in or on secondary boxes, lift poles, streetlight poles, or meter poles (primary voltage must not be present).
D. Pre-apprentices and trouble call assignment. Apprentices shall have at least one year's experience (successful completion of the pre-apprenticeship) before going on the trouble schedule. The pre-apprentice can work trouble during normal work schedules. In the

event of serious storms, such as hurricanes, an apprentice can work trouble during daylight hours only; this includes weekends (Management and Safety will address other situations on a case-by-case basis). A pre-apprentice cannot be on standby for another apprentice at any time (take another apprentice's trouble).

### 2. Apprentice I and II

A. Apprentices after one (1) year of employment in the apprenticeship program and upon successfully passing their first-year pre-apprentice test, the apprentice shall be placed on the trouble list. Apprentices are required to work their assigned trouble weeks as part of their training.
B. Use of insulated shotgun/hot sticks will be at the Journeyman's discretion, and the apprentice shall be trained in the associated tasks and knowledgeable of the associated hazards. Examples of scenarios are listed below:
    1. Installation and removal of grounds.
    2. Switching in URD equipment.
    3. Installation and removal of clamps or baskets.
C. Apprentices may operate handled or handless air brake switches (ABS) with the Journeyman's permission after proper training and knowledge of the associated hazards.
D. When an apprentice reaches one year or longer in the program but is not yet eligible to train to glove, the Journeyman Lineman can install cover up, and then the apprentice can change out equipment that does not require working through or close to any energized conductor, including changing out transformers. The apprentice must obtain permission from the Journeyman prior to each task.
E. Apprentices may install overhead and underground grounds after proper training and verification of lines to be grounded.

### 3. Apprentice II, III, and IV (Apprentice in Gloving)

A. An apprentice lineman in the glove training program (after 2½ years), is allowed to place cover up on energized lines.
B. The apprentice must fully understand the hazards associated with each scenario and have been fully trained specifically on the installation of cover-up before installing cover-up on their own.
C. The apprentice must secure permission prior to each job from the Journeyman or supervisor.
D. Gloves and sleeves must be worn to perform live-line gloving or apply cover-up, including on single-phase construction.
E. All gloving must be done with the accompaniment of a Journeyman Lineman or Journeyman Qualified lineman. This is a one-to-one ratio, one apprentice in training to one Journeyman or Journeyman Qualified lineman. This can be done from the same bucket (double bucket) or two separate bucket trucks.
F. When all potentials, including the system neutral, have been successfully covered, the trainee can remove their sleeves to change out equipment that does not require physical

contact with an energized conductor (live-line gloving) or the placement or removal of cover-up.

G. They shall wear rubber sleeves to reach through any covered multi-phase conductors, and the conductor shall be double insulated.

*Reference*: For modules and training information visit https://safety.wrec.net.

# DRIVING AND WORKING IN WINDY CONDITIONS

## 1. General

All crew members are responsible for ensuring their safety and ceasing work or travel when it becomes hazardous.

A. Employees should cease traveling (in all vehicles) or working when sustained winds reach tropical storm force wind velocity of 39 mph.
B. Once sustained winds drop below 39 mph, then wind gusts in excess of 39 mph must be monitored for safe working and traveling.
C. In addition, employees shall follow aerial device manufacturers' requirements associated with prohibited operation in high wind conditions.
D. Contact the Emergency Restoration Plan (ERP) administrator or your supervisor to help ascertain the wind speed in your area.

## 2. Use of Bucket Trucks or Aerial Lifts in Windy Conditions

A. Do not operate buckets in the elevated work position when the wind (steady or gusts) exceeds 30 mph. If the bucket truck manufacturer recommends a wind speed of less than 30 mph, the manufacturer's wind speed must be followed (e.g., Altec's maximum recommended wind speed is 30 mph).
B. When operating in winds up to 30 mph, follow these precautions:
    1. Outriggers, if so equipped, must be properly extended and on firm ground. Always use outrigger pads if there is any doubt as to the ground's firmness.
    2. On units without outriggers, the tires must be properly inflated and on firm ground. The truck must be maintained at a safe angle as described in the operator's manual.
    3. Refer to specific equipment operator/instruction manual for other precautions.
C. The operator must not assume that they can work in winds under 30 mph. The allowable wind speed that permits safe operation can change for each situation, location, and work height. The employees at the site are the only ones who can determine if it is safe to operate and perform the tasks assigned.

# METERING

## 1. Personal Protective Equipment (PPE)

A. Proper PPE shall be worn when installing or removing energized meters or performing work in/on energized meter sockets or other types of associated meter equipment/apparatus regardless of the meter's class, voltage rating, etc.
B. The minimum required PPE shall be a hard hat, face shields, rubber gloves, and proper FR clothing.
C. Class 0 Red Label (Max use voltage AC/DC 1,000/1,5000) are the minimum required gloves to install or remove a meter.

## 2. New Installations

A. Meter socket identification and verification shall be performed prior to a new meter installation, regardless of meter type, to ensure the absence of any short circuits. A voltmeter shall be used to test for proper voltage, and an ohm meter shall be used to test for load and/or short circuits.
B. The testing equipment (voltage testers, rotation meters, etc.) shall be verified to be in correct working condition prior to performing meter socket testing/verification.
C. New meter installations shall not be performed until it has been verified that the main disconnect or the equivalent is in the open position.

*Reference*: WREC: Meter Socket Verification Procedures

## 3. Reconnects and Disconnects

A. Care should be exercised when removing meters under load.
B. The limitation for removing a meter under load shall be a 200-amp single-phase self-contained meter.
C. Accounts that have been disconnected shall not be reconnected until verification that the main disconnect or the equivalent is in the open position. Meters will not be installed under load.

## 4. Transformer Rated Meters

A. Only qualified personnel shall perform work on transformer-rated meters.
B. Any service requiring an instrument-rated meter installation shall not be energized unless the meter technician is on-site and clearly communicates that the associated wiring for the meter installation is completed and ready to be energized.
C. Whenever possible, after constructing facilities to provide power for instrument rated meter installations, a visible air gap shall be provided by the line crew for the meter technician.
D. Instrumented rated meters shall not be removed nor the associated paperwork completed or processed for disconnecting related accounts until the service has been verified to be de-energized.

*Reference*: WREC: Meter Manual

## ADDITIONAL RESOURCES

1. Federated

   Federated Rural Electric Insurance Exchange, Regulatory Compliance
   Regulatory Compliance / https://www.federatedrural.com/

2. RESAP

   Rural Electric Safety Achievement Program (RESAP)
   WREC Intranet – Distribution / Transmission / Statewide Onsite 2023

3. OSHA 1910.269 References

Qualified employees shall also be trained and competent in OSHA 1910.269.

- **1910.269(a)(2)(ii)(A)**
  The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment,
- **1910.269(a)(2)(ii)(B)**
  The skills and techniques necessary to determine the nominal voltage of exposed live parts,
- **1910.269(a)(2)(ii)(C)**
  The minimum approach distances specified in this section corresponding to the voltages to which the qualified employee will be exposed, and
- **1910.269(a)(2)(ii)(D)**
  The proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools for working on or near exposed energized parts of electric equipment.
  **Note**: For the purposes of this section, a person must have this training in order to be considered a qualified person.
- **1910.269(a)(2)(iii)**
  The employer shall determine, through regular supervision and through inspections conducted on at least an annual basis, that each employee is complying with the safety-related work practices required by this section.
- **1910.269(a)(2)(iv)**
  An employee shall receive additional training (or retraining) under any of the following conditions:
  - **1910.269(a)(2)(iv)(A)**
    If the supervision and annual inspections required by paragraph (a)(2)(iii) of this section indicate that the employee is not complying with the safety-related work practices required by this section, or
  - **1910.269(a)(2)(iv)(B)**

If new technology, new types of equipment, or changes in procedures necessitate the use of safety-related work practices that are different from those which the employee would normally use, or

- **1910.269(a)(2)(iv)(C)**
  If They must employ safety-related work practices that are not normally used during their regular job duties.
  **Note**: OSHA would consider tasks that are performed less often than once per year to necessitate retraining before the performance of the work practices involved.

- **1910.269(a)(2)(v)**
  The training required by paragraph (a)(2) of this section shall be of the classroom or on-the-job type.
- **1910.269(a)(2)(vi)**
  The training shall establish employee proficiency in the work practices required by this section and shall introduce the procedures necessary for compliance with this section.
- **1910.269(a)(2)(vii)**
  The employer shall certify that each employee has received the training required by paragraph (a)(2) of this section. This certification shall be made when the employee demonstrates proficiency in the work practices involved and shall be maintained for the duration of the employee's employment.
  **Note**: Employment records that indicate that an employee has received the required training are an acceptable means of meeting this requirement.
- **1910.269(d)(2)(viii)**
  Retraining shall be provided by the employer as follows:
  - **1910.269(d)(2)(viii)(A)**
    Retraining shall be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment, or processes that present a new hazard or whenever there is a change in the energy control procedures.
  - **1910.269(d)(2)(viii)(B)**
    Retraining shall also be conducted whenever a periodic inspection under paragraph (d)(2)(v) of this section reveals, or whenever the employer has reason to believe, that there are deviations from or inadequacies in an employee's knowledge or use of the energy control procedures.
  - **1910.269(d)(2)(viii)(C)**
    The retraining shall reestablish employee proficiency and shall introduce new or revised control methods and procedures, as necessary.
- **1910.269(d)(2)(ix)**
  The employer shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training.