

POLICY

Hawk Energy, LLC has adopted this policy for the prevention of employee exposure to electrical hazards.

REFERENCES

- §2320—Low-Voltage Electrical Safety Orders
- §2940—High-Voltage Electrical Safety Orders
- §2946—Provisions for Preventing Accidents Due to Proximity to Overhead Lines
- §2947—Warning Signs Required
- §3203—Injury and Illness Prevention Program
- National Fire Protection Association (NFPA) 70E – Considered a best practice by Cal/OSHA

RESPONSIBILITIES

Employer Responsibilities

Identifying employees who are qualified welders

- Ensuring that safety inspections of the facility occur on regular basis
- Training employees in how to perform a job hazard analysis
- Responding quickly to eliminate workplace hazards
- Ensuring all equipment is kept in good repair
- Ensuring employees follow safe job procedures
- Reviewing job hazard analysis whenever there is a significant change to any element of the job or there has been an injury or illness

Supervisor Responsibilities

- Establishing and maintaining safe and healthful working conditions
- Familiar with electric safety and health hazards to which their employees are exposed, how to recognize them, the potential effects these hazards have on the employees and rules, procedures and work practices for controlling exposure to those hazards
- Setting good examples, instructing their employees, making sure they fully understand and follow safe procedures

Employee Responsibilities

- No employee is expected to undertake a job until he/she has received instructions on how to do it properly and safely and is authorized to perform the job
- No employees will undertake a job that is unsafe
- Mechanical safeguards will always be in place and kept in place
- Employees are to report to a superior or designated individual all unsafe conditions encountered during work
- PPE will be used when and where required and properly maintained

TRAINING

Qualified individuals will only perform electrical work. Training and documentation are required for qualified individuals. A qualified person will be trained and knowledgeable in the construction and operation of equipment or a specific work method and be trained to identify and avoid the electrical hazards that might be present with respect to that equipment or work method.

Qualified persons (those permitted to work on or near exposed energized parts) will, at minimum, be trained in and familiar with the following:

- The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment
- The specific task they are going to perform
- The skills necessary to determine the nominal voltage of exposed live parts
- The clearance distances required
- The proper use of special precautionary techniques, personal protective equipment (PPE), insulating and shielding materials and insulated tools for working on or near exposed energized parts of electric equipment (e.g., panels or equipment supplied from more than one source)

An employee will have this training to be considered qualified:

- Before performing electrical work, employees will be qualified to perform job-related electrical tasks as required by NFPA 70E 110.2(D). Electrical safety awareness training for qualified employees does not in itself qualify employees for job-related electrical tasks. A government electrician's license may be acceptable as documented proof of qualification.
- Employees exposed to the presence of 50 volts or more will have formal documented electrical training in both the job-related electrical tasks and electrical safety awareness.
- Tasks that are performed less often than once per year will require retraining before the performance of the work practices involved.
- An employee who is undergoing on-the-job training for the purpose of obtaining the skills and knowledge necessary to be considered a qualified person and who in the course of such training demonstrates an ability to perform specific duties safely at his or her level of training and who is under the direct supervision of a qualified person will be considered to be a qualified person for the performance of those specific tasks.

Documentation of qualifications will be maintained in departmental employees files. Documentation will include records of academic courses, experience, on-the-job training, safety courses and task-related certification. The employer will document that each employee has received the training required by 110.2(D). This documentation will be made when the employee demonstrates proficiency in the work practices involved and will be maintained for the duration of the employee's employment. The documentation will contain the content of the training, each employee's name and dates of training.

Hawk Energy, LLC requires retraining when workplace changes necessitate safety-related work practices that are different from what the employee normally uses. Different work practices may be new technology, types of equipment or changes in procedures. Retraining will be performed at least every three (3) years.

SAFE PRACTICES

Energized Work

The decision to work **hot** (energized) will only be made after careful analysis of the determination of what constitutes **infeasibility**. NFPA 70E and Cal/OSHA require employers to prove that working in a de-energized state creates more or worse hazards or is not practical because of equipment design or operational limitations. Examples include:

- Working on life-support systems
- Emergency alarm systems
- Ventilation equipment for hazardous locations,
- Work on circuits that are part of a continuous process that cannot be completely shut down

In addition, some maintenance and testing operations can only be done on live electric circuits or equipment. Many of the electrical occupational fatalities were the result of poor decisions to work hot without conducting an appropriate feasibility study to determine if de-energizing was even an option. Quick decisions that conclude “the electrical service can’t be interrupted” are often made for monetary reasons by employees unfamiliar with the electrical circuit or equipment and/or lack the knowledge of safe electrical work practices.

The philosophy to work energized to avoid additional cost or time will invariably result in a severe electrical incident which will cause major shutdowns, outages and equipment replacement. Thus, what would not be shut down on a temporary basis will be shut down for an extended time following an arc flash or electrocution. The time and cost of an accident will always far exceed the time and cost of a properly planned outage.

The decision-making process which leads to energized work will only be made by employees experienced in safe electrical work practices and will be documented in writing, such as included in an Energized Electrical Work Permit (EEWP). The EEWP will also identify the expected nominal voltage, appropriate protection boundaries to be followed, safe work practices and procedures, as well as the PPE which will be worn. Justification requests will include a sign-off provision before any energized work is authorized. The process of de-energizing an electrical circuit can also result in an arc flash due to equipment failure. Therefore, de-energizing electrical circuits will follow appropriate lockout/tagout procedures.

Electrical Low Voltage

Low-Voltage Electrical Safety applies to all electrical installations and electrical equipment operating or intended to operate on systems of 600 volts, nominal or less and to all work performed directly on or in proximity to such electrical installations, equipment or systems in all places of employment. Only qualified employees are authorized to perform work, service or maintenance on electrical parts or systems at Hawk Energy, LLC.

All employees will treat the electrical equipment as energized until tested as required by Cal/OSHA 2320.2 until tested or otherwise proven to be de-energized. This will be done to ensure the safety of the employees working on or around the electrical equipment.

Work will not be performed on exposed energized parts of equipment or systems until the following conditions are met:

- Responsible supervision has determined that the work is to be performed while the equipment or systems are energized
- Involved employees have received instructions on the work techniques and hazards involved in working on energized equipment
- Suitable PPE and safeguards are provided and used

LOCKOUT/TAGOUT PROCEDURES:

David Slim will be responsible for following Hawk Energy, LLC's Lockout Tagout (LOTO) procedures, maintaining a written copy and will make them available for inspection by employees and Cal/OSHA. While any employee is exposed to contact with parts of fixed electric equipment or circuits which have been de-energized, the circuits energizing the parts will be locked out and/or tagged.

David Slim will be responsible for the following before working on de-energized electrical equipment or systems unless the equipment is physically removed from the wiring system:

- Notifying all involved employees
- Locking the disconnecting means in the **open** position with the use of lockable devices, such as padlocks, combination locks or disconnecting of the conductor(s) or other positive methods or procedures which will effectively prevent unexpected or inadvertent energizing of a designated circuit, equipment or appliance

Energizing (or Re-Energizing) Equipment or Systems:

David Slim will be responsible for the following before energizing equipment or systems which have been de-energized:

- Determining that all employees is clear from hazards which might result from the equipment or systems being energized
- Removing locking devices and tags

Locking devices and tags may be removed only by the employee who placed them. Locking devices and tags will be removed upon completion of the work and after the installation of the protective guards and/or safety interlock systems. When the employee has left the work site or is otherwise unavailable, the employer may authorize another employee to remove the locking devices and tags in compliance with the employer's procedures.

Accident Prevention Tags:

Suitable accident prevention tags will be used to control a specific hazard. These tags will provide at least the following information:

- Reason for placing tag
- Name of employees placing the tag and how that employee may be contacted
- Date tag was placed

Safety Precautions:

Whenever there is access to opened enclosures containing exposed energized equipment that is not under the control of an authorized or certified employee, suitable temporary barriers or barricades, will be installed. These can be any one of the following:

- Barricades may be of a single placard, vertical type, a double placard, horizontal type
- A solid orange, plastic cone designed to be moved or rearranged quickly
- Barricades may be equipped with flashers for use at night and are often used with temporary signs which give specific directions to be followed
- Caution, Warning or Danger Barricade Tape

David Slim will be responsible for:

- Removing any temporary employees' PPE from the work area
- Reinstalling all permanent barriers or covers

CONDUCTIVE EQUIPMENT:

When working on or near exposed energized conductors or parts of equipment conductive measuring tapes, ropes or similar measuring devices will not be used. Conductive fish tapes will not be used in raceways entering enclosures containing exposed energized parts unless such parts are isolated by suitable barriers.

ELECTRICAL HIGH VOLTAGE

High Voltage Responsibilities

All work locations will be safely accessible whenever work is performed and will be provided with adequate illumination, such as drop lights, flood lights or a flashlight, to conduct work around electrical equipment safely. Work areas and entrances will be maintained and sufficient enough for all electrical equipment in order to provide safe operation and maintenance.

Each safety device, tool or piece of equipment will be inspected before each use and only tools and equipment that are in good working condition may be used. Defective tools and equipment will be tagged, removed from service immediately and repaired or replaced.

Employees are required to utilize the provided safety devices and safeguards.

Only qualified electrical employees are permitted to conduct operations on energized conductors or equipment connected to energized high-voltage systems.

Affected employees are prohibited from working alone, with the exception of the following situations:

- Replacing fuses
- Operating switches
- Operations that do not require the employee to make contact with energized high-voltage conductors or energized parts of equipment
- Clearing "trouble"
- Emergencies involving hazard to life or property

Employees in training who are qualified, by experience or training, may conduct operations on energized conductors or equipment connected to high-voltage systems but will be under the direct supervision or instruction of a qualified electrical employee.

Employees will maintain the minimum clear distances when performing work with live line tools. Conductor tools such as link sticks, strain carriers and insulator cradles are permitted provided that the clear insulation is at least as long as the insulator string or the minimum distance specified for the operating voltage. The minimum distance specified in CCR 2940.2 will be maintained when performing work with live line tools. Employees will have an approved insulating handles when approaching or

During operations that involve exposed conductors or equipment connected to high-voltage systems, a qualified electrical employee will be in close proximity to supervise the operation and render assistance in the event of an accident.

Operations involving overhead trolley distribution circuits under 1,500 volts D.C. where there is no conductor of opposite polarity less than four (4) ft. there from or where such work is performed from suitable tower platforms or other similar structures.

Protective Equipment

Hawk Energy, LLC will provide affected employees insulating equipment that is designed for the voltage levels anticipated to be encountered as well as adequate training on the use of the equipment.

Damaged or defective insulating equipment will be tagged and removed from service immediately to prevent the use of damaged or defective equipment by others.

Insulated gloves, sleeves and blankets will be visually inspected and electrically retested periodically at the required periods or if found to be damaged or defective. Each inspected item will be marked to indicate compliance with the retest schedule and either the date tested or the date of the next required test.

Hawk Energy, LLC will adhere to the following American Society for Testing and Materials (ASTM) maximum retesting interval standards:

- ASTM F 496-97
- ASTM F 479-95
- ASTM F 478-92

Portable conductive ladders will not be used near energized conductors or exposed energized parts of equipment except as may be necessary in specialized work, such as in high voltage substations where non-conductive ladders might present a greater hazard than conductive ladders.

- Portable conductive ladders will be legibly marked with signs reading **Caution – Do Not Use Near Energized Equipment** or equivalent wording

Overhead Power Lines

When working on or near overhead power lines Hawk Energy, LLC has adopted the following safeguards to ensure the safety of their employees:

- They will not require or permit any employee to perform any function in proximity to energized high-voltage lines
- To enter upon any land, building or other premises and there engage in any excavation, demolition, construction repair or other operation
- To erect, install, operate or store in or upon such premises any tools, machinery, equipment, materials or structures (including scaffolding, house moving, well drilling, pile driving or hoisting equipment) unless and until danger from accidental contact with said high-voltage lines has been effectively guarded against

Boom Operations

A clearance safe clearance distance during operations of Boom-type lifting or hoisting equipment in/and around overhead power lines will be done when doing the following:

- The erection, operation or dismantling of any boom-type lifting or hoisting equipment or any part thereof, closer than the minimum clearances from energized overhead high-voltage lines set forth in Table 2 will be prohibited.

Table 2 - Boom-Type Lifting or Hoisting Equipment Clearances Required from Energized Overhead High-Voltage Lines	
Nominal Voltage (Phase to Phase)	Minimum Required Clearance (Feet)
600 to 50,000	10
over 50,000 to 75,000	11
over 75,000 to 125,000	13
over 125,000 to 175,000	15
over 175,000 to 250,000	17
over 250,000 to 370,000	21
over 370,000 to 550,000	27
over 550,000 to 1,000,000	

Warning Signs

Warning signs that are legible up to 12 ft. will be attached to equipment such as cranes, derricks, drilling rigs, power shovels, hay loaders, hay stackers, pile drivers and other similar equipment, that state **Unlawful To Operate This Equipment Within 10 Feet of High-Voltage Lines of 50,000 Volts or Less**. Additionally, the warning sign will include the following statement in smaller lettering, **For Minimum Clearances of High-Voltage Lines In Excess of 50,000 Volts, See California Code of Regulations, Title 8, Article 37, High-Voltage Electrical Safety Orders.**

Energized Electrical Work Permit

<p><i>Part I: FILED BY THE REQUESTER</i></p> <p>1. Description of circuit/equipment/job location: _____</p> <p>2. Description of work to be done: _____</p> <p>3. Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage: _____</p>	<p>Work order # _____</p> <p>Requester/Title _____</p> <p>Date _____</p>
<p><i>Part II: FILED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK</i></p> <p>1. Description of the Safe Work Practices to be employed: _____</p> <p>2. Shock Hazard Analysis: Voltage Level Phase to Phase Approach Boundaries: Limited _____ Restricted _____</p> <p>3. Results of Flash Hazard Analysis: Flash Protection Boundary: _____ (Assumed or Calculated) _____ Hazard/Risk Category _____ OR Calculated Flash Hazard at 18" _____</p> <p>4. Necessary PPE to safely perform the assigned task: _____</p> <p>5. Means employed to restrict the access of unqualified persons from the work area: _____</p> <p>6. Evidence of completion of a Job Briefing including discussion of any job-related hazards: _____</p> <p>7. Do you agree the above-described work can be done safely? YES / NO (circle: If <i>no</i> return to requester)</p>	<p>Electrically Qualified Person(s)/Date: _____ _____ _____ _____ _____ _____ _____</p>
<p><i>Part III: APPROVAL(S) TO PERFORM WORK WHILE ELECTRICALLY ENERGIZED</i></p> <p>Approving Supervisor: _____</p>	<p>Date _____</p>
<p><i>Part IV: DOCUMENTATION OF ELECTRICALLY ENERGIZED WORK:</i></p> <p>I understand the above Energized Work was completed on the logged date _____</p> <p>Administrative Supervisor</p>	<p>Date _____</p>

