



Lockout/Tagout Practices

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Electrical Safety & Lock-out / Tag-out Program

We have developed the following procedures to protect our employees and reduce the risk of accidents. We will also conduct a periodic review of electrical safety, energy control procedures, and lock-out / tag-out, at least annually, to ensure that the procedure and the requirements of this section are being followed.

These practices are binding upon all employees that are affected by these procedures. Each employee shall be instructed by our yard manager or designee in the purpose and use of these procedures if applicable to his/her job as outlined under training.

All Equipment and Installations

1. Only trained, qualified, and authorized employees will be allowed to make electrical repairs or work on electrical equipment or installations.
2. All electrical equipment and systems shall be treated as energized until tested or otherwise proven to be de-energized.
3. All energized equipment and installations will be de-energized prior to the commencement of any work. If the equipment or installation must be energized for test or other purposes, special precautions will be taken to protect against the hazards of electric shock.
4. All equipment shall be locked out to protect against accidental or inadvertent operation when such operation could cause injury to personnel. Do not attempt to operate any switch, valve, or other energy isolating device bearing a lock/tag.
5. Safety grounds shall always be used where there is a danger of shock from back feeding or other hazards.
6. Polyester clothing or other flammable types of clothing shall not be worn near electrical circuits. Cotton clothing is much less likely to ignite from arc blast. Employees working on live circuits shall be provided Nomex or equivalent fire resistant clothing.
7. Suitable eye protection must be worn at all times while working on electrical equipment.
8. Always exercise caution when energizing electrical equipment or installations. Take steps to protect employees from arc blast and exploding equipment in the event of a fault.
9. All power tools will be grounded or double insulated. Tools with defective cords or wiring shall not be used.
10. Suitable temporary barriers or barricades shall be installed when access to open enclosures containing exposed energized equipment is not under the control of an authorized person.

Ground Fault Protection

To protect employees on construction sites from electric shock, we will use ground-fault circuit interrupters on all 120-volt, AC, single-phase, 15- and 20-ampere receptacle outlets, which are not a part of the permanent wiring of the building or structure. Receptacles on a two-wire, single phase portable or vehicle-mounted generator rated not more than 5 KW, where the circuit conductors of the generator are insulated from the generator frame and all their grounded surfaces, need not be protected with ground-fault circuit interrupters.

Feeders supplying 15- and 20-ampere receptacle branch circuits shall be permitted to be protected by a ground-fault circuit interrupter approved for the purpose in lieu of the above provisions.

Energized Equipment or Systems

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

1. Responsible supervision has determined that the work is to be performed while the equipment or systems are energized.
2. Involved personnel have received instructions on the work techniques and hazards involved in working on energized equipment and appropriate equipment to perform the job has been provided.
3. Suitable personal protective equipment has been provided and is used. Suitable insulated gloves shall be worn for voltages in excess of 300 volts, nominal.
4. Suitable eye protection, including face shield and safety glasses or goggles, has been provided and are used.
5. Fire resistant clothing such as Nomex suits are worn.
6. Where required, suitable barriers, barricades, tags, or signs are in place for personnel protection.

After the required work on an energized system or equipment has been completed, an authorized person shall be responsible for:

1. Removing from the work area any personnel and protective equipment.
2. Reinstalling all permanent barriers or covers.

De-energized Equipment or Systems

A qualified person shall be responsible for completing the following **before** working on de-energized electrical equipment or systems, unless the equipment is physically removed from the wiring system:

1. Notifying all involved personnel.
2. 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.
3. Tagging the disconnecting means with suitable accident prevention tags.
4. Effectively blocking the operation or dissipating the energy of all stored energy devices which present a hazard, such as capacitors or pneumatic, spring-loaded and like mechanisms. This may require the installation of safety grounds.
5. Testing the equipment to ensure it is de-energized.

Energizing (or Re-energizing) Equipment or Systems

A qualified and authorized person shall be responsible for completing the following before energizing equipment or systems which have been de-energized:

1. Determining that all persons are clear from hazards which might result from the equipment or systems being energized including arc blast or explosions caused by unexpected faults.
2. Removing locking devices and tags. Locking devices and tags may be removed only by the employee who placed them. Locking devices and tags shall be removed upon completion of the work and after the installation of the protective guards and/or safety interlock systems.

Accident Prevention Tags

Suitable accident prevention tags shall be used to control a specific hazard. Such tags shall provide the following minimum information:

1. Reason for placing lockout.
2. Name of person placing the tag and how that person may be contacted.
3. Date and time tag was placed.

DO NOT USE TAGS ALONE. Use tags or signs in addition to locks.

Blocks

Suitable blocks are another important safety device for making a piece of equipment safe to be repaired or serviced. Blocks must be placed under raised dies, lifts, or any equipment that might inadvertently move by sliding, falling or rolling.

Blocks, special brackets, or special stands such as those commonly used under raised vehicles, must be available and always used. Another form of blocking is the placement of a blind. A blind is a disk of metal placed in a pipe to ensure that no air, steam, or other substance will pass through that point if the system is accidentally activated.

Before installing blinds or blocks, bleed down steam, air, or hydraulic lines to get rid of any pressure. Coiled springs, spring-loaded devices, or suspended loads must also be released so that their stored energy will not result in inadvertent movement.

Rules for Using Lockout Procedure

Machinery or equipment capable of movement shall be stopped and the power source de-energized or disengaged, and locked out. If necessary, the moveable parts shall be mechanically blocked or secured to prevent inadvertent movement during cleaning, servicing or adjusting operations unless the machinery or equipment must be capable of movement during this period in order to perform the specific task. If so, the hazard of movement shall be minimized.

Equipment or power driven machines equipped with lockable controls, or readily adaptable to lockable controls, shall be locked out or positively sealed in the "off" position during repair work and setting-up operations. In all cases, accident prevention signs and/or tags shall be placed on the controls of the equipment or machines during repair work.

We will provide a sufficient number of accident prevention signs or tags and padlocks, seals or other similarly effective means which may be required by any reasonably foreseeable repair.

All equipment shall be locked out to protect against accidental or inadvertent operation when such operation could cause injury to personnel. Do not attempt to operate any switch, valve or other energy isolating device bearing a lock.

Preparation for Lockout

Employees authorized to perform lockout shall be certain as to which switch, valve or other energy isolating devices apply to the equipment being locked out. More than one energy source (electrical, mechanical, or others) may be involved. Any questionable identification of sources shall be cleared

by the employees with their supervisors. Before lockout commences, job authorization needs to be obtained.

Sequence of Lockout Procedure

1. Notify all affected employees that a lockout is required and the reason, therefore.
2. If the equipment is operating, shut it down by the normal stopping procedure (such as: depress stop button, open toggle switch).
3. Operate the switch, valve, or other energy isolating devices so that the energy source(s) (electrical, mechanical, hydraulic, other) is disconnected or isolated from the equipment. Stored energy, such as that in capacitors, springs, elevated machine members, rotating fly wheels, hydraulic systems, and air, gas, steam or water pressure, must also be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down.
4. Lockout energy isolating devices with an assigned individual lock.
5. After ensuring that no personnel are exposed and as a check on having disconnected the energy sources, operate the push button or other normal operating controls to make certain the equipment will not operate. CAUTION: Return operating controls to neutral position after the test.
6. The equipment is now locked out.

Testing Equipment During Lockout

In many maintenance and repair operations, machinery may need to be tested, and for that purpose energized, before additional maintenance work can be performed. This procedure must be followed:

1. Clear all personnel to safety.
2. Clear away tools and materials from equipment.
3. Remove lockout devices and re-energize systems, following the established safe procedure.
4. Proceed with tryout or test.
5. Neutralize all energy sources once again, purge all systems, and lockout prior to continuing work.

Equipment design and performance limitations may dictate that effective alternative worker protection be provided when the established lock-out procedure is not feasible.

Restoring Equipment to Service

After the work is completed and the equipment is ready to be returned to normal operation, this procedure must be followed:

1. Remove all non-essential items.
2. See that all equipment components are operationally intact, including guards and safety devices. Repair or replace defective guards before removing lockouts.
3. Remove each lockout device using the correct removal sequence.
4. Make a visual check before restoring energy to ensure that everyone is physically clear of the equipment.

Procedure Involving More Than One Person

In the preceding steps, if more than one individual is required to lock out equipment, each shall place his/her own personal lock on the energy isolating device(s). One designated individual of a work crew or a supervisor, with the knowledge of the crew, may lock out equipment for the whole crew. In such cases, it may be the responsibility of the individual to carry out all steps of the lockout procedure and

inform the crew when it is safe to work on the equipment. Additionally, the designated individual shall not remove a crew lock until it has been verified that all individuals are clear.

Training for Lockout/Tag Out

We will provide training to ensure that the purpose and function of the lockout/tagout are understood by employees and that the knowledge and skills for the safe application usage, and removal of lockout/tagout is required by employees.

Training shall include --

1. Each employee who operates the machines, maintains or repairs them shall receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.
2. Each affected employee shall be instructed on the purpose and use of the energy control procedures.
3. All other employees whose work operations are or may be in an area where energy control procedures may be utilized, shall be instructed about the procedure, and about the prohibition relating to attempts to restart or re-energize machines or equipment that are locked or tagged out.

Employees shall be trained when lockout systems are used. The following is a list of limitations of locks -

1. Implementation of lockout/tagout shall be performed only by the authorized employees.
2. Authorized employees are to use the locks specified for this act. Locks should be stand alone locks and independent of any other locks used in the company.
3. Only the authorized employee who places the lockout tagout device shall remove the device when repairs are completed, machine is ready to be used or a jammed machine has been cleared.
4. Only the authorized person and the employer should have a key to the specified "lockout" locks.
5. If needed use a two lock/key system. Two independent locks and authorized persons are involved in the lockout/tagout procedure.

Employees shall also be trained when tagout systems are used. The following is a list of limitations of tags -

1. Tags are warning devices affixed to energy isolating devices and do not provide the physical restraint on those devices. The Lockout should be used in conjunction with the Tagout on equipment and machines.
2. When a tag is attached to an energy isolating means, it is not to be removed under any circumstances without authorization from the authorized person who placed the tag or the employer. It is never to be ignored or bypassed.
3. The tags utilized must be legible and understandable by all employees in order to be effective.
4. The tags and their means of attachment must be made of materials that will withstand the environmental conditions encountered in the workplace.
5. The tags must be attached securely to the energy isolating devices so that they cannot be accidentally or inadvertently detached during use.
6. When the authorized employee who applied the lockout or tagout device is not available to remove it, that device should be removed under the direction of the employer, provided that specific procedures and training for such removal have been developed. The employer shall demonstrate that the specific procedure provides equivalent safety to the removal of the device by the authorized employee who applied it.

Retraining will be necessary when-

1. There is a change in the employee's job assignments.
2. New machines are used or acquired.
3. The employer changes procedures and/or authorized employees.
4. Whenever the employer has reason to believe that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures.

Retraining shall re-establish employee proficiency and introduce revised or new control methods and procedures set forth by the employer.

Definitions

- **Authorized Employees:** includes people who perform servicing or maintenance on machines and equipment. These employees use lockout/tagout for their own protection. (An affected employee and an authorized employee may be the same person when the affected employee's duties also include maintenance or service on a machine or equipment that must be locked, or a tagout system implemented.)
- **Affected Employees:** are people that perform job duties in an area in which there is implementation of the energy-control procedure and servicing or maintenance operations. Affected employees don't perform servicing or maintenance on machines or equipment. Consequently, they're not responsible for implementation of the energy-control procedure.
- **Other Employees:** are employees who work in the area, pass through or enter the area.
- **Energy Isolating Device:** refers to any mechanical device that physically prevents the transmission or release of hazardous energy. It includes, but isn't limited to, manually operated electrical-circuit breakers, disconnect switches, line valves and blocks.
- **Energy Control Program:** refers to a program intended to prevent the unexpected energizing or the release of stored energy in machines or equipment. It consists of energy-control procedure(s), an employee training program and periodic inspections.
- **Lockout:** means the placement of a lockout device on an energy-isolating device, in accordance with an established procedure, to ensure that employees cannot operate the energy-isolating device and the equipment being controlled until removal of the lockout device. OSHA prefers lockout to tagout for isolating machines or equipment from energy sources.
- **Tag Out:** means the placement of a tagout device on an energy-isolating device, in accordance with an established procedure, to indicate that employees cannot operate the energy-isolating device and the equipment being controlled until removal of the tagout device. Furthermore, the employer must demonstrate that a level of safety is achieved in the tagout program that is equivalent to the level obtained by using a lockout program.

Lockout/Tagout Summary

- Is all machinery or equipment capable of movement, required to de-energized or disengaged and blocked or locked out during cleaning, servicing, adjusting or setting up operations, whenever required?
 - Are all equipment control valve handles provided with a means for locking out?
 - Does the lock out procedure require that stored energy (mechanical, hydraulic, air etc.) be released or blocked before equipment is locked out for repairs?
 - Are appropriate employees provided with individually keyed personal safety locks?
 - Are employees required to keep personal control of their key(s) while they have safety locks in use?
 - Is it required that employees check the safety of the lock out by attempting a start up after making sure no one is exposed?
 - Is there a means provided to identify any or all employees who are working on locked out equipment by their locks or accompanying tags?
 - When machine operations, configuration or size requires the operator to leave his or her control station to install tools or perform other operations, and that part of the machine could move if accidentally activated, is such element required to be separately locked out or tagged?
 - In the event that equipment or lines cannot be shut down, locked out and tagged, is a safe job procedure established and rigidly followed?
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General Lockout/Tagout Guidelines	
This guideline addresses all potential types of energy sources, and is intended to help you evaluate and develop an energy control procedures (ECP) when our existing program is not designed for specific equipment. If you are unsure of the hazard, or uncomfortable determining how to control the energy source(s), talk with your manager or our safety manager for assistance.	
	<input checked="" type="checkbox"/>
Manufacturer/Model of Equipment or System:	<input type="checkbox"/>
The general procedures for the various types of energy sources are as follows:	
If available, review the manufacturer’s literature and/or wiring and mechanical schematics to assure that all energy sources have been identified, otherwise inspect the equipment/machine to identify all energy sources. During this inspection, do NOT perform work near exposed energized circuits unless you are a person qualified to work on electrical systems, and do NOT put any part of your body in any area where moving parts may cause injury. If you are unsure of the hazard, STOP WORK and contact your manager or our safety manager for guidance.	<input type="checkbox"/>
ELECTRICAL CONTROLS	
Isolate the machine or piece of equipment by using an electrical plug lock or by locking and tagging the disconnect switches. A special adaptor may be needed to LO/TO circuit breakers. On the ECP form, document where the LOTO are applied.	<input type="checkbox"/>
Bleed any stored electrical energy to a “zero energy state”. If this type of hazard is present, document on the ECP form.	<input type="checkbox"/>
Ensure that all power sources are LOTO by using a tester to check that all circuits are de-energized. Employees that must work on or near exposed energized parts or de-energized electrical parts that have not been LO/TO.	<input type="checkbox"/>
PNEUMATIC CONTROL	
Release the pressure to reach a “zero energy state”.	<input type="checkbox"/>
On the ECP form, document where the LOTO are applied. LOTO the energy source(s).	<input type="checkbox"/>
HYDRAULIC CONTROL	
Release the pressure to reach a “zero energy state”.	<input type="checkbox"/>
On the ECP form, document where the LOTO are applied. LOTO the energy source(s).	<input type="checkbox"/>
FLUIDS AND GASES	
Evaluate all hoses and valves connecting to the system or equipment. Determine what type of fluid or gas may be present and, if necessary, obtain and review the Safety Data Sheet (SDS) for the material. Take precautions as needed to protect you from exposure to any hazardous material that may be contained in the system. Contact your manager or our safety manager as needed for guidance.	<input type="checkbox"/>
Close all valves on supply lines, and as necessary, bleed or drain the contents. Contact your manager or our safety manager as needed for guidance on proper disposal of the material.	<input type="checkbox"/>
If working on a pressurized system where valve leaks may re-pressurize the line, insert a blank or blind in the line.	<input type="checkbox"/>
Use lockout valves, chains, and locks and tags at the isolating source. On the ECP form, document where the LOTO are applied, and document all related hazards.	<input type="checkbox"/>

General Lockout/Tagout Guidelines	
MECHANICAL CONTROL	
Release or block all stored mechanical energy. Be cautious of springs, tension, elevated mechanical arms or platforms that could lower, and other sources of energy that are not always obvious. If needed, restrain the system by inserting blocks.	<input type="checkbox"/>
On the ECP form, document where the LOTO are applied. LOTO the energy source(s)	<input type="checkbox"/>
Recheck all areas for potential sources of energy.	<input type="checkbox"/>
Review the energy control (ECP) procedure with your manager or our safety manager if the procedure, the system, or the equipment is new or unfamiliar.	<input type="checkbox"/>
Review the type and magnitude of the energy and the required controls.	<input type="checkbox"/>
Inform all affected employees, and all other employees working in or entering the work area, that LOTO is to be performed. Instruct these employees that they must not attempt to start equipment that has been locked/tagged out, and that locks/tags must not be bypassed or removed.	<input type="checkbox"/>
Shutdown the equipment/process/system by following the ECP.	<input type="checkbox"/>
Locate the necessary energy isolating device(s) for the equipment/process/system and operate them to isolate them from the energy sources. Affix LOTO devices.	<input type="checkbox"/>
Relieve all stored or residual energy and take appropriate measures to ensure the energy will not re-accumulate. Affix lockout/tagout devices as necessary.	<input type="checkbox"/>
Verify that all sources of energy have been isolated and stored energy relieved after ensuring that employees are not exposed and before beginning work. Activate equipment or system controls to ensure that the equipment or system will not operate, and then deactivate the controls.	<input type="checkbox"/>
Perform the servicing or maintenance.	<input type="checkbox"/>
Replace all guards and safety devices. Remove all tools and equipment from the work site. Assure that all personnel are clear of the equipment.	<input type="checkbox"/>
Notify all affected personnel that the system will be reactivated.	<input type="checkbox"/>
Lockout/tagout devices are removed by the authorized employee(s) who installed the devices.	<input type="checkbox"/>
LOCKOUT/TAGOUT DEVICE REMOVAL BY THE MANAGER	
<p>If it becomes necessary to remove a LOTO of an employee who is unavailable on site, the removal of this device must be done using the following procedure.</p> <ul style="list-style-type: none"> • Your manager must ensure that the employee who applied the lock or tag is <u>not</u> available at the workplace; and • Your manager must make all reasonable efforts to contact the authorized employee to inform him or her that his/her lockout and/or tagout device has been removed; and • Your manager <u>ensures</u> that the employee is made aware that his or her lock or tag was removed <u>before</u> he or she resumes work at that worksite. 	
GROUP LOCKOUT/TAGOUT	
When a lockout/tagout job involves numerous lockout/tagout devices and many employees, the group lockout/tagout procedure included in this program should be used.	