



Purpose

The purpose of the lockout/tagout procedures is to establish minimum requirements for the lockout of energy isolating devices whenever maintenance or servicing is done on machines or equipment. The procedures shall be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources, and locked and tagged out before employees perform any servicing or maintenance where the unexpected energizing or startup of the machine or equipment or release of stored energy could cause injury.

Work situations where unexpected energizing or start up can occur include new construction, installation or set up of equipment, and the adjustment, inspection, maintenance, repair, and servicing of machines and equipment. Energy types to be considered include electrical, mechanical, hydraulic, pneumatic, chemical, and thermal.

All employees will be required to follow these procedures at all times.

Responsibilities

Each employee has a role in maintaining a safe and healthy workplace. The following responsibilities exist for employees, department supervisors, administrators, and risk management committee members:

1. Employees performing maintenance or service on equipment requiring lockout/tagout must:
 - Read and understand this policy and the Lockout/Tagout Program and procedures.
 - Use lockout devices for machines and equipment that can be locked out. Tagout devices may be used in lieu of lockout devices only if the tagout program provides employee's protection equivalent to that provided through a lockout program,
 - Be aware of the type and magnitude of, the hazards of, and the correct means to control and isolate the chemical, electrical, hydraulic, gravity, spring, thermal, or battery energy associated with the equipment to be worked on.
 - Personally verify all energy sources have been locked out and that equipment is at zero energy state.
 - At the completion of work, remove all locks and tags and notify affected employees that the equipment is safe to operate,
 - Defective equipment or equipment requiring maintenance will be de-energized and locked and tagged out.

2. Department Supervisor/Manager

In addition to the above items:

- Communicate the provisions of the policy, procedures, and program to all staff.
- Train all new employees coming into the department in the District's lockout/tagout program.
- Conduct specific training for equipment in areas of responsibility.
- Ensure written procedures for multiple energy source equipment are being followed at all times.
- Ensure that new or overhauled machines and equipment are capable of being locked out.
- Complete annual inspection and compliance form associated with lockout procedures.
- Ensure that lockout/tagout devices identify the individual users.
- Enforce compliance with the standard.

3. Department Administrator

- Understands the district's lockout/tagout program and the importance of complying with the program at all times.
- Provides guidance and assistance when needed.
- Holds all supervisors and employees accountable for complying with the program at all times.

4. Risk Management Committee

- Supports the implementation of the policy and procedures.
- Provides initial training to all employees/users.
- Inspects applicable buildings and equipment periodically.

Preparation for Service or Maintenance

- Defective equipment or equipment requiring maintenance will be de-energized and locked and tagged out.
- Multiple energy source equipment will be de-energized and locked and tagged out according to the procedure indicated on the lockout/tagout procedure form.
- The form will be reviewed with the personnel who will actually install the isolation devices and lockout/tagout devices.

Isolation

The authorized employee(s) required to make changes, repairs, or perform maintenance of equipment must have knowledge of the type and magnitude of the

energy hazards involved. They must know how to isolate the energy sources and install lockout/tagout devices. On multiple energy source equipment they must understand how to isolate and lock and tag out all energy sources. The authorized employee will then notify appropriate personnel in the area that the equipment has to be locked/tagged out for servicing.

Lockout/Tagout

Lockout and/or tagout devices must be attached to each isolation point. Locking an isolation point and tagging it is always preferable to tagout only, and must be done whenever possible. Every isolation point must be locked if possible and have a tagout device attached to it. The tagout devices must be filled out legibly. Tags will indicate the date it was hung and must be attached to the isolation point with a non-releasable, self-locking cable tie, or by passing the shank of the lock through the tag. Locks must be attached in such a manner that each lock functions independently, and the equipment cannot be energized until all locks and/or tags are removed. Emergency isolation source will be locked if possible and must be locked and tagged.

Equipment Shut-Down Procedure

- Following the installation of lockout/tagout devices, the authorized employee shall ensure that any potentially stored energy is relieved (i.e. capacitors, etc.).
- The authorized employee will perform the maintenance or service at the work site, review the type and magnitude of energy involved, and the location of all energy isolation points.
- Each authorized employee performing maintenance or service will place his/her personal lock and tag at each energy isolation location.
- The authorized employee will then verify that the equipment is de-energized by:
 1. Trying the start switch or other activating device(s).
 2. Visually verifying that the equipment is de-energized and/or non-functional.
 3. Depressing the STOP switch after the visual inspection to ensure zero energy state.
- All authorized employees will verify they have installed their personal lock and/or tag and have reviewed the job and verified the equipment is at zero energy state.
- On multiple energy source equipment, the Lockout/Tagout Procedure Form for Multiple Energy Source Equipment will be used to verify that all energy isolation points have been locked and/or tagged out.
- Once the authorized employee lockout is installed, the equipment may not be released for operation until the required repairs have been made. Once the equipment has been repaired, the authorized employee will then remove the locks/tags, advise affected employees in the area that the operations have been completed, and that the equipment is ready for operation.

Testing Equipment During Lockout/Tagout

In many maintenance and repair operations, machinery may need to be tested; and for that purpose, energized before additional maintenance work can be performed. If testing is needed, the following actions shall be followed:

1. Clear away all tools and materials from equipment.
2. Clear personnel.
3. Remove lockout and tagout devices.
4. Re-energize systems, following the established safe procedures.
5. Proceed with test or tryout.
6. De-energize all energy sources once again, purge all systems, and follow the steps outlined for equipment lockout/tagout prior to continuing to work.
7. Re-verify isolation and zero energy state.

Release from Lockout/Tagout

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.
3. Repair or replace defective guards before removing lockouts.
4. Remove each lockout device using the correct removal sequence.
5. Ensure that everyone is physically clear of the equipment.
6. Complete the Lockout/Tagout Removal Form to document the above actions. Completed forms are to be kept on file in the maintenance department.

Emergency Lock/Tag Removal

Should an authorized employee who installed a personal lockout/tagout not be available to remove it, the lockout/tagout may be removed with approval by the Director of Maintenance and Operations, provided that the following precautions are taken:

1. Verify the authorized employee is not available.
2. Make all reasonable attempts to contact the authorized employee to inform him/her that his/her lockout/tagout device is being removed.
3. Complete a Lockout/Tagout Removal Form to document the above actions. Completed forms are to be kept on file in the maintenance department.

Tagout Only

When the energy isolating device for or to the machine or equipment being worked on is not capable of being locked out, then a tagout shall be utilized. When lockout devices

are not possible and tagout only is used, the employee(s) must be trained on the following restrictions on tags:

1. Tags affixed to isolation devices are warning devices that do not provide the physical restraint on the device that a lock would provide.
2. Any tag attached to an isolation device must not be removed without authorization of the person attaching it, in accordance with the procedure and must never be bypassed, ignored or otherwise defeated.
3. Tags must be legible and understandable.
4. Tags must be weatherproof and attached with a non-reusable locking cable tie.
5. Tags can invoke a false sense of security and their meaning needs to be clearly understood.

Energized Circuits (Troubleshooting)

Work on energized circuits will be kept to a minimum. If it is necessary to work on energized equipment, the Director of Maintenance and Operations must be notified prior to work starting and only qualified employees are authorized to work on energized circuits/equipment. Energized parts that operate at less than 50 volts to ground do not need to be de-energized if there will be no increased exposure to electrical burns or to explosion due to electric arcs. When work involves electrical equipment that could permit exposure to 440 volts or greater, two (2) qualified employees must work together.

Hydraulic Energy

Equipment using hydraulic pressure shall be locked out by placing the hydraulic pump motor electrical disconnect switch in the OFF position and applying a lockout/tagout device to the disconnect. The authorized employee must bleed off the residual pressure in the piping system.

Shift Change

The Director of Maintenance and Operations shall ensure the continuity of the lockout/tagout process by the orderly transfer of lockout/tagout device protection between the off-going and on-coming employees to minimize exposure hazards from the unexpected energizing or startup of the machine or equipment being worked on.

Outside Personnel (Contractors, etc.)

Whenever outside service personnel are engaged in activities covered by the scope and application of this policy, maintenance and operations staff and all contractors (including on-site contractors) shall inform each other of their respective lockout/tagout procedures.

The Director of Maintenance and Operations shall ensure that maintenance and operations personnel understand and comply with the restrictions and prohibitions of

any contractor's energy control procedures and contractors shall ensure that their personnel do likewise.

Work on Piping Systems

Hazardous energy exists in piping systems in the form of steam, liquids, and chemicals. Lockout/tagout procedures should be followed when breaking into a line where there is potential for exposure to hazardous energy.

Many accidents occur because of the failure to verify that all energy sources have been isolated. In some instances, piping being serviced may be back-fed or be tapped into by several lines leading to an unexpected release. Pipe line drawings and/or plant maintenance personnel must be consulted to identify all lines feeding the system being serviced.

On steam systems above 15 psig, double valve protection is required when the work involved may jeopardize the integrity of the piping the isolation valve is attached to. Clarification: When working on a main steam line between two isolation valves of verified reliability, it is not necessary to close a second main steam valve upstream of the repair area. When working on a small diameter steam line such as a trap station line, the small diameter valve is not adequate isolation. The steam main valve on each side of the repair area must be closed. This distinction is necessary because of the possibility of breaking a smaller diameter valve and compromising the safety isolation.

Other precautions for piping systems:

1. If it is physically impossible to trace the line back to the lockout or to otherwise verify a safe line, a pinhole should be tapped prior to cutting a line.
2. By loosening bolts slowly all the way around a gasket, incomplete energy release of lines can be detected without injury.
3. Employees shall avoid working directly under a valve or cutting point where pipe contents may be released.

High Voltage Equipment

Work on any high voltage equipment shall be performed only by a high voltage electrician or electrical engineer.

Gravity and Stored Energy

Regardless of the lockout/tagout procedure used, safety blocks or mechanical devices will be used to protect employees from any accidental equipment movement, bleed off, or otherwise dissipate the residual pressure in steam, air, gas, water, electrical, mechanical, and/or hydraulic systems.

Mobile Equipment Maintenance

Mobile equipment maintenance presents a variety of dangers from stored and potentially hazardous energy. It is important to bring equipment to a zero mechanical state in which there is no potential for accidental release of stored or potential energy and accidental startup or movement is prevented. If working on wheeled equipment, wheel chocks shall be placed to prevent the equipment from rolling or spinning. If maintenance or service work requires that attachments or other components be elevated, hardwood blocks, equipment jacks, safety stops, or pivot-point pins shall be installed to prevent the elevated items from falling or moving.

Manufacturer's instructions must always be followed. Some general procedures to be used for shutdown/ isolation of mobile equipment include:

1. Park on a firm, level surface.
2. Place the controls in the park, neutral, or off position.
3. Set the parking brake.
4. Lower forks, buckets, booms, or other attachments to the ground.
5. Idle the engine for gradual cooling when applicable.
6. Shut off the engine.
7. Cycle hydraulic controls to eliminate residual pressure.
8. Lock the ignition and remove the key.
9. Lock all vehicle doors and place "DO NOT OPERATE- SERVICING" tags on outside door handles if working under vehicle on grade.
10. Attach a "DO NOT OPERATE" tag to the steering wheel or lever.
11. Block the wheels.
12. Disconnect the battery if working on or around the electrical system.
13. Install lift arm restraints or block the cylinders if work must be done with arms in the raised position.

Group Lockout/Tagout Procedures

When more than one authorized employee is involved in equipment maintenance, a group lockout/tagout procedure is to be used. This procedure must provide the personnel involved with the degree of protection that is equivalent to the use of personal locks and tags.

Primary responsibility will be given to a lead person. The lead person must be on the job and be aware, at all times, of the location and the status of all group members with regard to the lockout/tagout of the equipment. It will be his/her primary responsibility to be accountable for the safety of all group members under his/her control.

A. Verification of Isolation for group lockout:

- The lead authorized employee will review the type and magnitude of the hazards and correct means to control and isolate the chemical, electrical, hydraulic,

gravity, pneumatic, spring, thermal or battery energy involved with the other authorized employees and the group.

- The lead authorized employee shall install his/her personal lock and/or tagout device; each group member will then attach his/her personal lock or tag.
- Lead authorized employee and each group member shall verify that the equipment is de-energized and that any potentially stored energy is released.

B. Release from group lockout/tagout:

- The lead authorized employee will verify that all his/her group members are free and clear of the equipment before it is released from lockout/tagout.
- After all group members have been accounted for each group member will remove his/her personal lock and/or tag.
- The lead authorized employee may then remove his/her lock and/or tag and proceed with the release from isolation.

Exclusions to Lockout/Tagout

1. Normal production operations including repetitive, routine, minor adjustments and maintenance to equipment which has safety guards in place at the adjustment location and the employee is in no danger of being harmed.
2. Work on plug and cord-connected electrical equipment only when it is unplugged and employee performing maintenance or repair has complete control over the plug.
3. Hot tap operations involving gas, steam, water transmission, and distribution systems provided the employer shows that continuity of service is essential, shutdown is impractical, documented procedures are followed, and special equipment is used which will provide proven effective protection for employees.
4. A designated qualified employee is standing guard at the energy isolation device for the sole purpose of ensuring the energy source is not activated.

Equipment for Lockout/Tagout

For the purpose of achieving lockout/tagout, employees will be provided with appropriate lockout equipment. Equipment shall include, but is not limited to:

1. Padlocks
 - One or more padlocks will be issued to each authorized employee who will have an individual key. These locks may only be used for lockout purposes. Locks will be identified by a number assigned to that employee. The key may never be given to another person. A second/master key for each lock will be issued to the Director of Maintenance and Operations to enable them to open and remove a padlock after taking the required precautions.
2. Lockout tags
3. Lockout hasps

4. Circuit breaker lockout devices
5. Lockout Clamps
 - A device designed to accommodate more than one lockout padlock when more than one person is working on de-activated equipment. Each person, to assure his/her safety, will apply their own lockout lock and remove it when the task is completed.
6. Warning Tags
 - Authorized Employees will be issued warning tags which must be used whenever a lock cannot be applied. The tag must be affixed as closely as possible to the energy disconnect with a single purpose plastic tie. The warning tag legends may include, but are not limited to:
 - DANGER – Do Not Start
 - DANGER – Do Not Open
 - DANGER – Do Not Close
 - DANGER – Do Not Energize
 - DANGER – Do Not Operate
 - Warning tags must have the ability to write the name of the authorized employee and the date of application.
 - Tags must be durable, weatherproof, and not easily damaged.

Monitoring the Procedure

At least once a year an audit of the lockout/tagout energy control procedures shall be conducted to ensure that the procedures and requirements are being followed by the authorized employee(s). The audit shall be performed by the Director of Maintenance and Operations. If the audit finds any deficiencies, the person(s) being inspected will be retrained or disciplined depending on the seriousness of the findings. The individual conducting the audit shall review with employees their responsibilities under the procedures. The annual audit will be certified with the following information:

1. The equipment on which the lockout/tagout was being used.
2. The date of the inspection and the name of the employee being audited.
3. The name of the person performing the inspection.

Employee Training and Retraining

Training and retraining will be provided to ensure employees understand the purpose and function of the lockout/tagout program and procedures and that they have the knowledge and skills required for safe application, usage, and removal of isolation device(s). Training will be given and proficiency assured prior to authorization and, when there is a change, in their job assignment thereafter.

Each authorized employee who will use the Lockout/Tagout procedure will receive training in the recognition of type and magnitude of, the hazard of and the correct means to control and isolate the energy source.

Each affected employee whose job requires him/her to operate or use equipment on which maintenance and servicing will be done or works in an area where such maintenance or servicing will be done, will be trained in the purpose and use of the lockout/tagout procedure.

All other employees whose jobs are or may be in an area where hazardous energy control procedures may be utilized will be instructed regarding the procedure and about prohibition concerning restarting and re-energizing equipment which is locked out or tagged out.

Compliance with this procedure is mandated by federal law.

Approved: 10/22/13

DEFINITIONS

Affected Employee: An employee whose job requires him/her to operate or use machinery or equipment on which maintenance or repair is being performed under the lockout/tagout policy and procedures, or whose job requires him/her to work in an area in which such maintenance or repair is being performed.

Authorized Employee: An employee trained and authorized in the use of placing a lockout/tagout device on a machine or piece of equipment requiring servicing or maintenance.

Capable of being locked out: An energy isolating device will be considered to be capable of being locked out if it has any of the following:

1. It is designed with a hasp or other attachment or integral part to which, or through which, a lock can be affixed.
2. Has a locking mechanism built into it.
3. If a lockout can be achieved without the need to dismantle, rebuild, or replace the energy-isolating device or permanently alter its energy control capability.

Energy Isolating Device: A mechanical device that physically prevents the transmission or release of energy including, but not limited to, a manually operated electrical circuit breaker, a disconnect switch, a manually operated switch, a slide gate, a slip gate, a slip blind, spectacle flange, a line valve, blocks, and similar devices with a visible indication of the position of the device. (Push buttons, selector switches, and other control-circuit type devices are not energy isolating devices).

Energy Source: Any electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy source that could cause injury to personnel.

Hot Tap: A procedure used in repair and maintenance activities that involves welding on a piece of equipment (pipelines, vessels, or tanks) under pressure in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water and steam distribution systems.

Isolation: The creation of a barrier that prevents the flow of energy or material.

Lead Authorized Employee: An authorized employee who is designated as the lead person in a group lockout/tagout procedure.

Lock: A device or mechanism that ensures the equipment cannot be turned on while the work is occurring.

Lockout: Lockout is the process of blocking the flow of energy from an energy source to a piece of equipment and keeping it blocked out.

Lockout Device: A device is a lock, block, or chain that keeps a valve or lever in the off position.

Lockout/Tagout: The placement of a lock/tag on the energy isolating device in accordance with an established procedure, indicating that the energy isolating device shall not be operated until removal of the lock/tag in accordance with an established procedure. (The term “lockout/tagout” requires the combination of a lockout device and a tagout device).

Maintenance and Repair: Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining machines or equipment. These activities include but are not limited to lubrication, cleaning or unjamming of machines or equipment, and making adjustments or tool changes where the employee may be exposed to the unexpected start-up of the equipment or release of hazardous energy.

Qualified Employee: An employee who possesses expertise, knowledge, training, certification, and experience and has successfully demonstrated their ability to resolve problems relating to the work, subject matter, or the project.

Shall: The word “shall” always implies a mandatory requirement.

Stored Energy: Residual energy that could be potentially hazardous and released unexpectedly without warning.

Tagout: The placement of a specially designed, weatherproof warning tag attached with a non-releasable, self-locking cable tie on the energy isolating device. The purpose of the tagout is to warn others that you are working on the equipment and it must not be started.

Tagout Device: A prominent warning device, such as a tag, that can be securely attached to equipment or machinery for the purpose of warning personnel not to operate an energy isolating device and identifying the applier or authority who has control of the procedure.

WEST HILLS COMMUNITY COLLEGE DISTRICT

MACHINE OR EQUIPMENT
LOCKOUT/TAGOUT ENERGY CONTROL PROCEDURES

Date: _____ Time: _____ am / pm Work Order No. _____

Authorized Employee: _____

Location of Job (building and room #): _____

Description of Job: _____

Machine(s) or Equipment to be Locked Out/Tagged Out: _____

Procedures for Controlling Hazardous Energy Sources

1. Sources of Hazardous Energy:

- Electrical Natural Gas Springs Hydraulic
- Gravity Steam Chemical Thermal
- Pneumatic Other: _____

2. Have all the appropriate people have been notified of the shutdown (area supervisor, affected employees)? YES NO

Special instructions or description of notification: _____

3. Has each energy source been shut off? YES NO

Specific instructions or describe how: _____

4. Have lockout/tagout devices been placed on the equipment or machine? YES NO

Specific instructions or description of lock and lock number applied and where: _____

If a tag only is used in lieu of a lock when the energy isolating device is incapable of lockout, the following additional safety precaution/s will be taken:

Specific instruction or description of additional precautions to be taken: _____

5. Has the machine or equipment been verified that no residual energy is stored? YES NO

Describe how: _____

WEST HILLS COMMUNITY COLLEGE DISTRICT
LOCKOUT/TAGOUT REMOVAL PROCEDURES

Date: _____ Time: _____ am / pm Work Order No. _____
Authorized Employee: _____
Location of Job (building and room #): _____
Machine(s) or Equipment Locked Out/Tagged Out: _____
Reason for Removing Lock: _____

Have the following actions been taken?

- 1. Verified that the equipment is safe before removing the lockout/tagout device? YES NO
- 2. Removed all nonessential items from around the machine? YES NO
- 3. Ensured all employees are free and clear of the equipment? YES NO

Answer items below ONLY if removal of lockout/tagout is done by an authorized employee WHO IS NOT the installing employee:

- 1. Verified that the authorized employee is not available to remove their lockout/tag out device? YES NO
- 2. Made all reasonable attempts to inform the authorized employee that the lockout/tagout device has been removed? YES NO
- 3. Contacted the authorized employee's supervisor? YES NO
- 4. Other Comments: _____

WEST HILLS COMMUNITY COLLEGE DISTRICT
ANNUAL LOCKOUT/TAGOUT AUDIT (INSPECTION) FORM

Date: _____ Department: _____

Machine or Equipment Name: _____

Location of Equipment Locked Out: _____

Review with employee(s) performing service or maintenance on the following:

- Have you had lockout/tagout training? YES NO
- Do you have lockout/tagout equipment? YES NO
- Are lockout procedures for above machine/equipment available and/or posted? YES NO
- Does employee(s) understand his/her lockout responsibilities? YES NO

Observation:

Were lockout/tagout procedures followed and performed correctly? YES NO
 NONE REQUIRED

List deviation(s) or inadequacies observed: _____

Corrections/Changes/Comments: _____

Is retraining required? YES NO

Employee(s) Inspected:

Name: _____ Department: _____

Name: _____ Department: _____

Name: _____ Department: _____

Inspected By:

Name: _____ Position: _____