

DEPARTMENT OF PHYSICAL PLANT
LOCKOUT/TAGOUT PROGRAM

PURPOSE

This procedure establishes requirements for the lockout or tagout of energy isolating devices. It shall be used to ensure that the machine or equipment is isolated from all potentially hazardous energy, and locked out or tagged out before employees perform any service or maintenance activities where an unexpected start up or release of stored energy could cause injury.

I. DEFINITION

- A. LOCKOUT/TAGOUT - The placement of a Lockout and/or Tagout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout/tagout device is removed.
- B. LOCKOUT DEVICE - A device that utilizes a positive means such as a key type lock to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment.
- C. TAGOUT DEVICE - A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.
- D. ENERGY SOURCE - Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal or other energy.
- E. ENERGY ISOLATING DEVICE - A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: a manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors; a slide gate; a slip blind, line valve, blocks or similar devices with visible indication of the position of the device. (Push buttons, selector switches and similar control circuit type devices are NOT energy isolating devices).
- F. AFFECTED PERSONNEL - Pertains to the employee(s) who has locked out or tagged out the machine or equipment, their Shop Supervisor and the Superintendent of their craft.

II. RESPONSIBILITY

It will be the responsibility of the Supervisor/Foreman to ensure that their employees:

- A. are issued a lock out and tag out device;
- B. follow the procedures outlined below for locking or tagging out a machine or equipment when doing service or maintenance;
- C. receive training on craft related equipment and machines including any special considerations that includes their work areas.

It will be the responsibility of the Employee to ensure:

- A. personal knowledge of the equipment to be maintained or serviced and/or seek advice if needed; and,
- B. read and know the University of Louisville Physical Plant Lock Out/Tag Out Program.

III. SCOPE OF THE STANDARD

This Standard applies to:

- A. any source of mechanical, hydraulic, pneumatic, chemical, thermal or other energy;
- B. piping systems and requires all potentially hazardous stored or residual energy be relieved, disconnected, restrained, and otherwise rendered safe. If there is any possibility of re-accumulation of stored energy to a hazardous level, continued monitoring shall be performed while a potential hazard exists.
- C. high intensity electromagnetic fields and nonionizing radiation. Such electromagnetic devices shall be de-energized and held off whenever workers are present within a high intensity ambient field.

IV. GENERAL

- A. This standard addresses practices and procedures that are necessary to disable machinery or equipment and to prevent the release of potentially hazardous energy while service and maintenance activities are being performed.
- B. The Lockout/Tagout provisions of this standard are for the protection of the University of Louisville, Department of Physical Plant Employees while performing service and/or maintenance functions.
- C. If an energy isolating device is capable of being locked out, the University of Louisville, Department of Physical Plant Employees are required to Lock and Tag out that device. If a device is unable to be locked out, the Employee is to place a tagout device in the location where the lockout device might be placed.

V. PROCEDURE

A. Lock-Out Sequence

1. Review Lockout/Tagout Procedures.
2. Notify all affected employees that a Lockout is required and the reasons for the Lockout.
3. If the machine or equipment is operating, shut down energy source using normal stopping procedure (depress stop button, open toggle switch, etc.)
4. Operate the switch, valve, or other energy isolating device(s) so that the equipment is isolated from its energy source(s). Stored energy (such as that in springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc) must be dissipated or restrained by methods such as repositioning, blocking, bleeding down, etc.
5. Lockout the energy isolating devices with your ASSIGNED lock and tag. Your tag should be attached to the lock indicating the reason, date, and name of person who is locking out the machine/equipment.
6. After ensuring that no personnel are exposed, and all energy sources have been disconnected, operate the push button or other normal operating controls to make certain the equipment will not operate.
CAUTION: Return operating control(s) to "NEUTRAL" or "OFF" position after the test.
7. The equipment/machine is now locked and tagged out.

B. Tag-out Sequence

1. Review Lockout/Tagout Procedures.
2. Notify all affected employees that a Tagout is required and the reasons for the Tagout.
3. If the machine or equipment is operating, shut down energy source using normal stopping procedure (depress stop button, open toggle switch, etc.)
4. Operate the switch, valve, or other energy isolating device(s) so that the equipment is isolated from its energy source(s). Stored energy (such as that in springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc) must be dissipated or restrained by methods such as repositioning, blocking, bleeding down, etc.
5. Tagout the energy isolating devices with your ASSIGNED tag, indicating the reason, date, and name of person who is tagging out the machine/equipment.
6. After ensuring that no personnel are exposed, and all energy sources have been disconnected, operate the push button or other normal operating controls to make certain the equipment will not operate.
CAUTION: Return operating control(s) to "NEUTRAL" or "OFF" position after the test.
7. The equipment/machine is now tagged out.

C. Restoring Equipment to Service

1. After servicing/maintenance is completed and the equipment is ready for normal operations, inspect the area around the machine/equipment to ensure that all safe guards have been secured in proper place, all tools and miscellaneous supplies have been removed and that no one is exposed to the start up of the machine/equipment.
2. After inspection is complete, remove all lockout/tagout devices. Restore energy source to the machine or equipment and start machine or equipment with normal start up procedures.

D. Special Considerations

1. Procedure Involving More Than One Person
 - a. If more than one individual is required to lock/tag out the equipment/machine, each will place their own ASSIGNED lock and tag on the energy isolating device(s) indicating the reason of the lock/tag out. The individuals should report the lock/tag out to their Supervisor/Foreman and should also keep the same informed of the progress of the lock/tag out so that the Supervisor/Foreman can coordinate with the affected personnel the completion of the lock/tag out.
 - b. After all Groups/Shops involved in the lockout are completed with their service/maintenance, each individual is to remove their own lock and tag and report to their Supervisor/Foreman the completion.
2. Removal of Lock/Tags by Supervisor/Foreman
 - a. In the event that an Employee is not available to remove their personal lock and tag from the machine/equipment, their Supervisor/Foreman shall take the responsibility for removing the lock and tag from the locked out equipment or machine.
 - b. Before the Supervisor/Foreman removes the individuals lock and tag, the Supervisor/Foreman shall complete the attached "Lock and Tag Removal Form", and send " copies to the affected personnel.
3. Electrical Plugs - Electrical Equipment operated with extension cords and electrical plugs shall be locked out by placing the plug in a lock adapter or in the employees pocket so that it cannot be plugged into a receptacle until repaired.

4. Non-Electrical Systems - Hydraulics, Chemical Lines, Mechanical:

- a. Retaining Pins - Some mechanical and gravity systems that do not involve electrical circuits must be locked out by installing mechanical stops or retaining pins. The stops and pins must have openings where locks might be placed.
- b. Blocks - If for some reason there is no way to lock out a mechanical system, then the system shall be physically blocked against movement. Switches, clutches or other controls shall be tagged.
- c. Pipe Flanges, caps for hydraulic systems (e.g. steam) or chemical piping systems, special precautions shall be taken to prevent the inadvertent flow of material. One or more of the following shall be addressed especially for confined space entry:
 - 1) Cap all pipelines or ducts to a confined space.
 - 2) Remove a section of pipe.
 - 3) Insert a full pressure blank in line or ducts and tag the first connection from the confined space. The blank shall be of a material not affected by any liquid or gas it would contact and of sufficient strength to withstand the maximum pressures that could be exerted against it.
 - 4) Install special blank flanges in piping system to prevent employee exposure and provide lockout provisions. The flanges shall have openings for installation of chains, locks and tags.
 - 5) Close and lock at least two valves in the line and lock open a drain between the two valves where the material in the line presents no hazard from temperature, high pressure, flammability or toxicity.

5. Service/maintenance of fire alarms and extinguishing systems and their components, upon which other employees are dependent for fire safety, are not required to meet the requirements of this standard IF the workers performing the service/maintenance on the fire extinguishing systems are protected from hazards related to the unexpected release of hazardous energy by appropriate alternative measures.

6. Hot Tap Operations - will be addressed in the Training portion of this program.

E. Outside Contractors

If an outside Contractor should have to lockout/tagout one of the University of Louisville's Machines or Equipment, they should first report to the Physical Plant Work Control Center in the Service Complex Building and complete the appropriate form for Outside Contractors. They should list their name, the Contractor's Name, and how and when they can be reached for removal of lock or tag. Work Control Center should report the lock or tag out to the appropriate Group/Shop giving them the information on the form so the necessary actions for repair can be completed. When the Contractor's work has been completed, the Contractor is to call Work Control Center at 6241 to advised that their Lock Out/Tag Out device has been removed.

SUPERVISORY LOCK AND TAG REMOVAL FORM

I. Directions: All information below should be completed before lock is removed.

EMPLOYEE NAME: _____ DATE: _____

CLOCK NO.: _____ SHIFT: _____

GROUP/SHOP: _____

SPECIFIC AREA (Location and equipment where work is being performed):

II. Are all employees clear of the equipment/process? YES NO

Are all electrical/mechanical operations, equipment,
or processes now safe to operate? YES NO

Did Supervisor inspect area before restart of equipment? YES NO

COMMENTS: _____

III. Signature to be obtained before removal of LOCK:

GROUP/SHOP FOREMAN

SUPERINTENDENT

DATE

DATE

CC: Superintendent
Foreman
Affected Personnel

